

# DUN'S REVIEW

## and Modern Industry



**DECEMBER, 1953**  
**75 cents**

*Keeping* SMALL  
BUSINESS  
STRONG

UNIVERSITY  
OF MICHIGAN

DEC 14 1953

BUSINESS ADMINISTRATION  
LIBRARY



**WILLIAM D. MITCHELL**

*Administrator, Small Business Administration*

*I*N July of this year, in a move that marked a turning point in the history of Governmental assistance with the problems of small business, Congress established the Small Business Administration—the first Government agency created to serve and to represent all small business both in peacetime and in periods of national emergency.

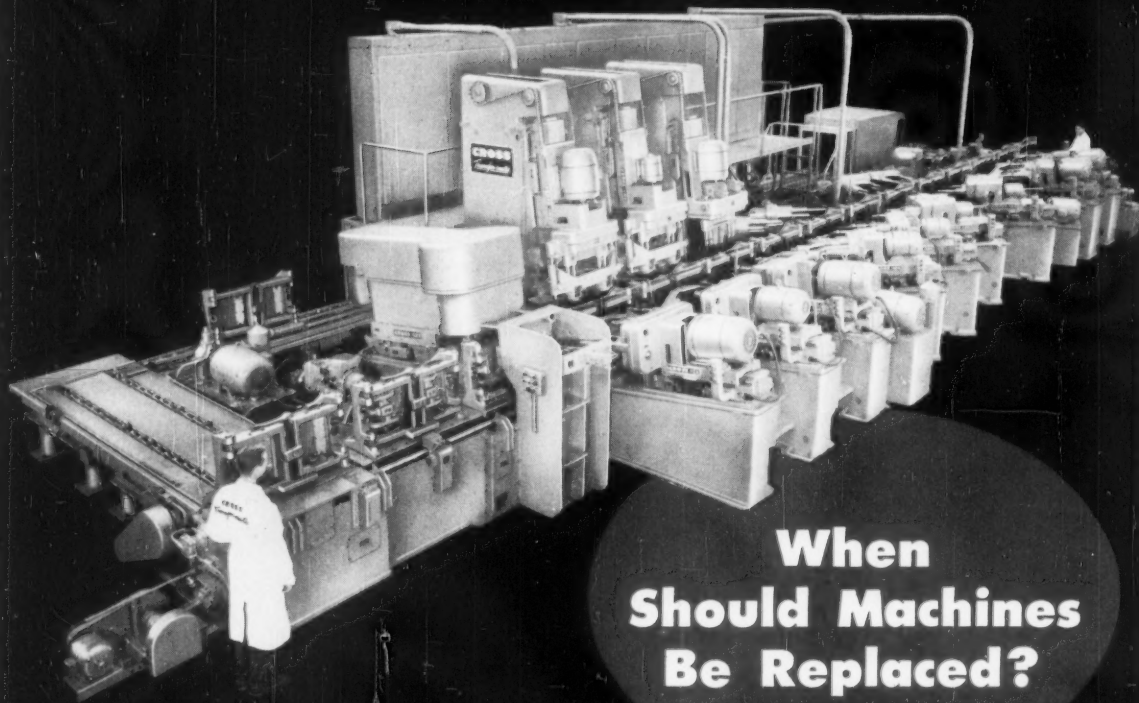
The Small Business Administration replaced the Small Defense Plants Administration, the emergency agency set up after Korea to assist small business with problems arising out of the defense mobilization program.

The replacement was far more than a mere change in name, however. It has been realized that small business is in need of aids not given before.

*Continued on page 41*



*Another Transfer-matic by Cross*

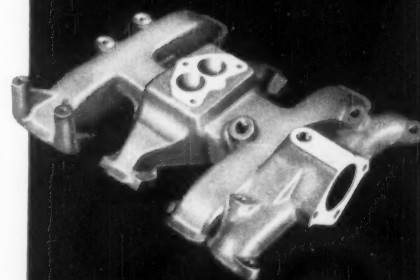


**When  
Should Machines  
Be Replaced?**

One of management's most perplexing problems today is deciding when machine tools should be replaced. Little has been done to make the executive's job easier or to lessen his chance for error.

The Cross Company has developed a simple procedure for analyzing modernization proposals based on projected profit and loss comparisons. Our sales engineers will be glad to discuss this important subject with your production executives.

P.S. The Cross Transfer-matic shown here performs 100 operations on 206 intake manifolds per hour.



Established 1898

THE **CROSS** CO.  
DETROIT 7, MICHIGAN  
*Special* MACHINE TOOLS

# DUN'S REVIEW and Modern Industry

DECEMBER

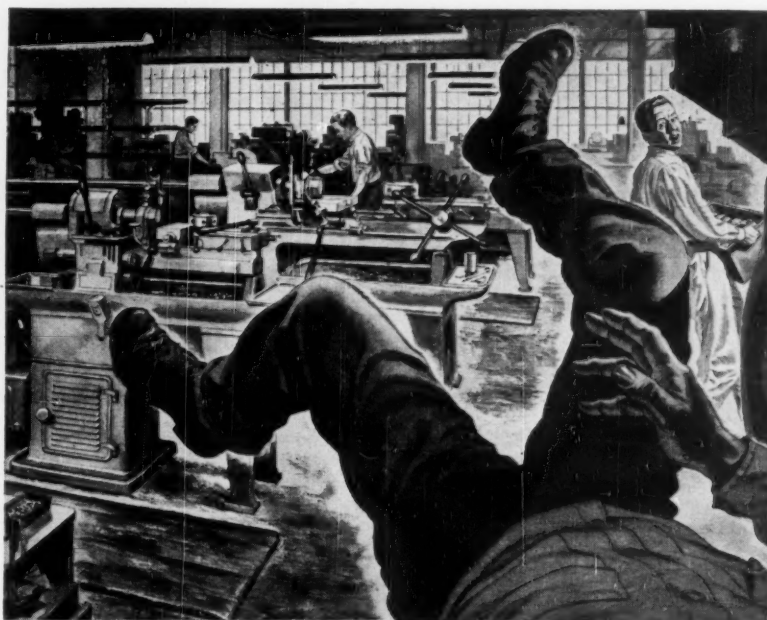
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...Then **ALGRIP** Banished Slipping Accidents  
and Pared the Company's High Insurance Rates!



Take a machine tool, surround it with oil-filmed flooring, and you've set the stage for a tragedy. This one—in a southern industrial plant—cost a skilled workman his arm.

ELIMINATED:  
Crippling accidents that slashed production.  
SAVED:  
Lost man-hours and high insurance premiums.

Then we installed A.W. ALGRIP Abrasive Rolled Steel Floor Plate. Result: No more slipping accidents! For tough abrasive "grinding-wheel" grain, rolled deeply and densely into steel plate, makes ALGRIP truly non-skid. It's almost impossible to slip on this hard-gripping floor plate—even when it's wet or oily—even on steep inclines!

**Benefit:** A three-way saving . . . (1) No more costly, crippling accidents. (2) More efficient work and better production. (3) A substantial reduction of workmen's compensation insurance premiums—substantial enough, in fact, to pay for the cost of the ALGRIP installation!

**End Slipping Accidents that Cripple Men and Production—and Kite Insurance Premiums.**

A.W. ALGRIP—only abrasive rolled steel floor plate in the world—pays for itself in savings from safety. Get the full ALGRIP story today; write for our new Booklet AL-3—without obligation.

Over 125 Years of Iron and Steel Making Experience

**ALGRIP Abrasive Rolled Steel Floor Plate**  
**ALAN WOOD STEEL COMPANY**  
CONSHOHOCKEN, PA.

Other Products: A.W. SUPER-DIAMOND Floor Plate • Plates • Sheet • Strip  
(Alloy and Special Grades)







## THE BOSTON MAN IN 1953

**TO THE BUYER OF INDUSTRIAL RUBBER PRODUCTS . . .** Here is a handy, easy-to-file list of some of the many Boston Men throughout the country . . . production experts specializing in industrial rubber products. With this list on file, you can quickly and easily locate a Boston distributor near you . . . and put his industrial rubber experience and know-how to work for you.

### ALABAMA

Mill & Textile Supply Co., Birmingham

### ARKANSAS

Little Rock Road Machinery Co., Little Rock

### CALIFORNIA

Warren & Bailey Company, Los Angeles  
Mission Pipe and Supply Co., San Diego  
L. P. Degen Belting Company, San Francisco  
Gilmore Steel & Supply Co., San Francisco

### COLORADO

Johnson Supply Co., Denver

### CONNECTICUT

The Bidwell Rubber Company, Hartford  
W. I. Clark Company, New Haven

### FLORIDA

Farquhar Machinery Company, Jacksonville  
Central Machinery & Supply Co., Miami  
Milf Supplies Inc., Orlando  
Knight & Wall Company, Tampa

### GEORGIA

Baykin Tool & Supply Company, Atlanta  
Toole Supply Co., Inc., Augusta  
Corbin Supply Company, Macon  
Flaming & Moore Supply Co., Savannah

### ILLINOIS

Simmons Supply Company, Cairo  
Boston Woven Hose & Rubber Co. of  
Pittsburgh, Chicago Division, Chicago  
Barrett Hardware Co., Joliet  
Couch & Hevle, Inc., Peoria  
Factory Supplies Co., Rockford  
W. M. Hales Co., Inc., West Frankfort

### INDIANA

Housh Industrial Supplies, Inc., Evansville  
National Mill Supply, Inc., Fort Wayne  
W. J. Holliday & Company, Indianapolis  
Biggs Pump & Supply, Inc., Lafayette  
Industrial Supply Company, Terre Haute

### IOWA

C. Brown Supply Company, Fort Dodge

### KANSAS

Joplin Supply Company, Baxter Springs  
Supply Service Company, Hutchinson  
Phillips & Easton Supply Co., Wichita

### KENTUCKY

Industrial Division, Womwell Automotive  
Parts Company, Lexington  
Davis Rubber & Supply Company, Louisville  
Ohio Valley Supply Company, Paducah

### LOUISIANA

Woodward, Wight & Co., Ltd., New Orleans  
Midland Belting and Supply Co., Shreveport

### MAINE

W. I. Blake & Co., Portland

### MARYLAND

Free State Equipment Co., Inc., Baltimore  
Kauffman Manufacturing & Supply Co.,  
Hagerstown

### MASSACHUSETTS

Hedge Mattheis Company, Boston  
Hinds & Coon Co., Boston  
The Greene Rubber Company, Cambridge  
Babbitt Steam Specialty Co., New Bedford  
Chase Turbine Manufacturing Co., Orange  
Berkshire Mill Supply Company, Pittsfield  
W. J. Foss Company, Springfield  
Mechanics Rubber Company, Worcester

### MICHIGAN

Ohio Rubber Supply Co., Detroit  
Delta Hardware Company, Escanaba  
Barclay Ayers & Bertsch Co., Grand Rapids  
Rond Supply Company, Kalamazoo

### MINNESOTA

Marshall-Wellis Company, Duluth  
Strang-Scott Manufacturing Co., Minneapolis  
Wm. H. Ziegler Company, Inc.,  
Minneapolis

### MONTANA

Missoula Mercantile Co., Missoula

### MISSOURI

Bonne Terre Farming & Cattle Co.,  
Bonne Terre  
McNally Pump & Plumbing Supply Co.,  
Hannibal  
Hanna Rubber Company, Kansas City  
Stowe Hardware & Supply Co., Kansas City  
J. P. Bushnell Packing Supply Co., St. Louis  
Missouri Belting Company, St. Louis  
Schweitzer Brothers, Springfield

### NEBRASKA

Central Supply & Rubber Company, Omaha

### NEW HAMPSHIRE

Perkins, Bossett & Wright, Inc., Keene

### NEW JERSEY

Industrial Rubber Co., Elizabeth  
Smyth Rubber and Packing Co., Jersey City  
Goodyear Rubber Products Corp., Newark  
Phoenix Hardware Company, Newark  
Passaic Rubber Products Co., Passaic  
Burton Supply Co., Inc., Paterson  
Ten Hoeve Brothers, Paterson  
General Rubber Corp., Tenafly  
James E. Lambert, Trenton

### NEW MEXICO

Harry Cornelius Company, Albuquerque  
Mine Supply, Inc., Silver City

### NEW YORK

Donald Billings, Inc., Bronx  
L. H. Heberlein Inc., Brooklyn  
Greschler's, Brooklyn  
William Goldenblum & Co., Brooklyn  
Superior Oil and Belting, Brooklyn  
A. N. Nelson, Inc., Brooklyn  
Progressive Floor Covering Corp., Brooklyn  
Buffalo Rubber & Supply, Inc., Buffalo  
LeValley-McLeod, Inc., Elmira  
Turcotte Mill Supply Company, Jamestown  
American Grass Equipment Sales Corp.,  
New York City  
Banner Hose & Rubber Co., Inc.,  
New York City  
I. Beck & Sons, New York City  
Wm. L. Blumberg Co., Inc., New York City  
The Darco Company, Inc., New York City  
The Durst Manufacturing Company, Inc.,  
New York City  
Gerard Packing and Belting Co.,  
New York City  
Goodyear Sundries and Mechanical  
Co., Inc., New York City  
Greiner New York Carpet House, Inc.,  
New York City  
C. D. Greenbaum Co., Inc., New York City  
Griffin Engineering Corp., New York City  
Herman Kornahrens, Inc., New York City  
Loring Lane Co., New York City  
Mahoney-Clarke, Inc., New York City  
Miller Products Co., Inc., New York City  
H. J. Murray & Co., New York City  
The Safety Fire Extinguisher Co.,  
New York City  
Sickels Loder, Inc., New York City  
Stewart Dickson & Co., New York City  
Louis E. Strong Packing Company, Inc.,  
New York City  
William Summer Belting Co., New York City  
United Rubber Supply Co., New York City  
O. C. & K. R. Wilson, Inc., New York City  
O. W. Jackson & Co., Inc., New York City  
Bonner & Barnewell, Inc., New York City  
Central Rubber Products Co., Inc.,  
New York City  
Globe Hardware Co., New York City  
Excelsior Belting Company, New York City  
Hubert Bros., Inc., Plattsburg

### NEW YORK (LONG ISLAND)

Complete Machinery & Equipment Co., Inc.,  
Long Island City  
Empire State Hardware and Supply Corp.,  
Long Island City  
Lester & Co., New Garden  
Local Steel and Supply Co., Inc., Mineola  
Alcan Machinery and Equipment Co., Inc.,  
Corona

### NORTH CAROLINA

Southern Rubber Company, Greensboro  
Machine & Supply Co., Inc., Morehead City  
Craven Foundry & Machine Co., New Bern  
Central Supply Company, Raleigh  
Carolina Machinery & Supply, Rocky Mount  
Shelby Supply Company, Shelby  
Mill & Contractors Supply Co., Wilmington

### OHIO

The Queen City Supply Co., Cincinnati  
The W. H. Summers Company, Cleveland  
The Hardy & Dischinger Company, Toledo

### OKLAHOMA

Talbot Rubber Company, Oklahoma City  
The Hopy Company, Tulsa

### OREGON

Goodyear Rubber & Asbestos Co., Portland

### PENNSYLVANIA

W. A. Tydemann & Son, Inc., Easton  
Industrial Motor Supply, Harrisburg  
Morton Mill Supply Company, Kingston  
Harold E. Smith, Lancaster  
Hercules Hose & Rubber Co., Philadelphia  
Stockwell Rubber Company, Philadelphia  
Boston Woven Hose & Rubber Co.,  
of Pittsburgh, Pittsburgh

### RHODE ISLAND

Read & Lundy, Inc., Providence

### SOUTH CAROLINA

Thackston-Davis Supply Co., Inc., Columbia  
Poe Hardware Company, Greenville

### TENNESSEE

Rogers Bailey Supply Co., Chattanooga  
Browning Belting & Supply Co., Knoxville  
Memphis Rubber & Supply Co., Memphis  
Nashville Machine & Supply Co., Nashville

### TEXAS

Abilene Electric Company, Abilene  
Dallas Pump Service, Dallas  
Shovel Supply Co., Dallas  
Texas Rubber Supply, Inc., Dallas  
El Paso Saw & Belting Supply Co., El Paso  
General Industrial Supply Corp., Fort Worth  
Peden Iron & Steel Company, Houston  
M. B. McKee Company, Lubbock  
D. E. Shipp Belting Company, Waco

### UTAH

Flinco, Inc., Salt Lake City

### VERMONT

Reed Supply Company, St. Johnsbury

### VIRGINIA

Ferebee, Johnson, Co., Inc., Lynchburg  
The Henry Walke Co., Norfolk  
Norton Hardware Company, Norton  
Southern Railway Supply Co., Richmond  
Parker-Nimmo Supply Co., Inc., Salem

### WASHINGTON

Steam Supply & Rubber Company, Seattle  
Towne Equipment Company, Spokane

### WEST VIRGINIA

Anchor Sales Company, Beckley  
Bluefield Supply Company, Bluefield  
Rish Equipment Company, Bluefield  
Baldwin Supply Company, Charleston

### WISCONSIN

Industrial Supplies Corporation, Appleton  
E. Garmich & Sons Hardware Co., Ashland  
The General Rubber Company, Milwaukee



**THE BOSTON MAN**  
IN 1880



**THE  
BOSTON MAN'S  
BUSINESS:**  
rubber products  
engineered to  
your job

**Fast-Moving Boston Research Gives You Better Industrial Rubber Products!**

The Boston Man has solved problems in many instances almost identical with one that may be costing you money.

If your company uses industrial rubber goods of any type—from V-belts to mighty river-spanning conveyor belts, slender tubing to giant steel-reinforced suction hose—it will pay you to do business with Boston's specialists. Behind every Boston product stands a background of research unsurpassed in the industry. And if your needs are out of the ordinary, Boston's staff of scientists, engineers and designers stand ready to meet your most exacting requirements.

Why not bring your problems to one of the world's largest specialists in the manufacture of mechanical rubber goods. See our distributor in your area. He is your "Boston Man."

**BOSTON**



BOSTON WOVEN HOSE & RUBBER CO., Box 1071, Boston 3, Mass.

Industrial Hose • Belting • V-Belts • Packing • Tubing • Garden Hose • Tape • Matting



# IN BUILDING CONSTRUCTION...

## MEN AND METHODS

### MAKE THE DIFFERENCE

WHEN YOU CHOOSE A BUILDER, it's important to consider his capacity for teamwork.

He must be able to work effectively with the other members of the building team — owners, architects and engineers. His organization must be skilled in the close teamwork needed to build soundly, on schedule and within the budget. His men and methods make the difference between waste and economy, between time lost and time gained in completing the job.

The George A. Fuller Company's belief in the importance of good teamwork is reflected in its record: 72 years of excellent relations with owners and members of the building industry, thousands of varied construction projects satisfactorily completed throughout the United States and in many foreign countries.

Many owners have profited by Fuller's ability to provide estimates, studies and "know how" to help the building team produce the best structure for the money. These services are available from the first stages of planning — and throughout construction in the field.

INDUSTRIAL PLANTS • HOSPITALS  
LABORATORIES • OFFICE BUILDINGS  
SCHOOL AND COLLEGE BUILDINGS  
CHURCHES • HOTELS • BANKS  
ARENAS • HOUSING • THEATERS  
TERMINALS • STORES AND SHOPPING  
CENTERS • BROADCASTING STUDIOS  
MONUMENTAL BUILDINGS



*Sign of Leadership in Building Construction*

# GEORGE A. FULLER COMPANY

NEW YORK • BOSTON • CHICAGO • PITTSBURGH • WASHINGTON • ATLANTA • LOS ANGELES



IT STILL IS fashionable to be on the side of decline, but most Washington economists admit that prospects for 1954 are better than they anticipated early in the year. While the more optimistic officials recognize there is nothing inevitable about a business slump, they feel that too much significance has been attached to isolated weak spots. Third quarter returns have been encouraging. Moving goods is requiring more and more effort, but selling is still far from being as intensive as it could be.

★ ★ ★ ★ ★

Removal of rent control has stimulated construction. There is less uncertainty as to interest rates. That, combined with higher rentals, has caused many persons to decide to build homes of their own. With the rent increases, landlords will have to spend more on repairs and refurbishing. This reflects some of the thinking in official circles.

★ ★ ★ ★ ★

Unemployment continues at a fantastically low mark. The number of unemployed could double without affecting the general economy, but political complications would certainly arise if that were to happen. This could be far-reaching in an election year.

★ ★ ★ ★ ★

Some surprise is expressed at the way employment holds up, although less overtime is being paid. Officials are pleased by indications that plant and equipment expenditures will be more in 1954 than had been anticipated. Early plans for 1954 were made in an atmosphere of doubt as to business prospects. Under the influence of good earnings, continuing defense orders, and tax relief, plans involving investment blossomed in many industries and areas of the country.

★ ★ ★ ★ ★

Money supply is operating in a way that stimulates business activity. The increase is due partly to the larger outflow of funds from the Treasury. Increased Treasury borrowing has out-balanced the de-

cline in demand for private credit. Demand for credit, however, is expected to increase. The banks have more money to lend than they had a year ago.

★ ★ ★ ★ ★

Beneficiaries of foreign aid are taking careful note of economic trends. They recognize that only a little downturn of business in the United States would be sufficient to insure further curtailment of the program of foreign aid now in effect.

★ ★ ★ ★ ★

The Federal Reserve's index of industrial production has been revised. The 1947-49 period will be the base instead of using the figures of 1935 to 1939 as 100. This is the first major revision since 1940. Seventy-five new components have been added. Calculations of seasonal adjustments have been altered. Levels will be established more accurately. The annual index will be much more elaborate.

★ ★ ★ ★ ★

Veterans are being urged to give more time to education and training before taking jobs. It is being pointed out to ex-servicemen that it may be more difficult to get jobs in the future and that the better they are prepared the better they will be able to meet competition.

★ ★ ★ ★ ★

Loss of gold by the United States is one indicator showing the improvement abroad. In the last year and a half foreign countries have increased by \$3,500,000,000 their holdings of gold and dollars. Nearly a billion dollars have been invested by foreign countries in United States securities.

*Paul Ewerton*

WASHINGTON, D. C.



# Here's where PENNY PINCHING pays off!



When Package Machinery Company engineers start to work on your packaging costs, they are real penny pinchers—aim to give you every saving possible. That may mean a saving in the amount of material needed per package, cutting costs by thousands of dollars a year...A saving of minutes in adjusting the machine for a different size...Less time for inserting a new roll of wrapping material...Greater accessibility of parts for faster cleaning and adjustment. Added up, these savings make a real contribution to profits.

What's more, we often boost packaging speeds considerably, resulting in still greater savings. For example, we recently perfected a new frozen food wrapping machine that increases production speed 60%.

New economies in plant operation were never more urgently needed than they are today. So why not let a "PACKAGE" representative check on your present methods.

Write or phone our nearest office

**PACKAGE  
MACHINERY COMPANY**  
SPRINGFIELD, MASSACHUSETTS

Leading manufacturers look to "Package" for the most advanced packaging machinery.

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DALLAS DENVER LOS ANGELES SAN FRANCISCO SEATTLE TORONTO MEXICO, D.F.

## VOICE OF BUSINESS

*Contributions of chemistry; evaluating security; making a business concern tick; looking ahead in the office; what "age"; association is significant.*

### Chemistry as an aid



"... no barriers but our ingenuity."

CHARLES S. MUNSON

Chairman of the Board, Air Reduction Company, Inc., before American Section, Society of Chemical Industry.

Throughout the world, there are vast areas that are sometimes described as underdeveloped. Given a reasonably favorable climate of international relations, many of these underdeveloped areas could, in a relatively short period of time, become highly productive.

To mention only the agricultural possibilities, there could be a great increase in the food supply of the world through the development and increase of agricultural production in these areas—and this would mean, almost immediately, greatly increased demand for a host of other products.

More important, it would mean that the tragically large portion of the earth's population which is underfed would get a chance to become really alive and contribute their share to progress. Given that chance, those people could appreciate the meaning of liberty which perhaps escapes them to-day in their struggle for bare existence. The challenge and the possibilities are incalculable.

But, unless we meet the challenge with real foresight and wisdom, our ventures in this field may rebound to our detriment rather than our advantage. Whether the challenge will be met and the possibilities real-

ized depends in large degree on the wisdom and prudence of the policies pursued by the people of the United States. Here applied chemistry must walk hand in hand with applied, practical democracy.

Viewed as a whole, these challenges, present and future, are not a new type. The present challenge of the technological frontier is merely a variation of the old challenge of the American geographic frontier.

We are limited by no barriers but our ingenuity and the extent of our faith in the American ideal. We live in a society where, contrary to Marxist beliefs, progress knows no bounds. The chemical industry presents a striking example of the ability of a free economy in a democratic society to serve the needs of its people, and often to surpass their fondest hopes.

### The perplexing problem of security



"... easy is not what it is not."

LEWIS L. STRAUSS

Chairman, United States Atomic Energy Commission, before National Security Industrial Association.

One short comment about the moot subject of security. It is a troublesome thing. Like taxes, I would gladly be rid of it—but also like taxes, it seems to be a part of an uneasy and armament-burdened world.

At times and at places some think we have had too much of it. There

is no doubt of the fact that at other times and places we have had too little. It looks as if it ought to be easy to find a proper balance, but easy is just what it is not. We do know this: That too much security when realized can be corrected by relaxing it. Too little security, when it is realized, is beyond correction. It is too late by then.

*What produces a going concern?*



"... in terms of imagination, of energy, of worry, and of persistence."

**DR. ALLEN B. DU MONT**

President, Allen B. Du Mont Laboratories, Inc., before Industrial Council at Rensselaer Polytechnic Institute.

Perhaps I am wrong, but I suspect that a great many Americans think of a going corporation as something that has always existed—they think of it as so many cubic feet of concrete, of steel girders, and as a mass of machinery. And from this cold, impersonal blot on the horizon they believe that America's products are automatically produced. Some think that highly paid managers are comfortably seated in lush offices and that their major task is keeping track of profits.

Obviously the history and background of every American corporation differ in many details, but the records of almost all of them will show a period of intense struggle, will probably reveal men who were too single-minded or too stubborn to give up when the going seemed almost impossible. At further stages in their progress, having finally arrived as going concerns, you will find in those corporations other men who are carrying the ball for the original founders—men who are too dedicated to their jobs and to their companies to allow the hot breath of competition to push their particular companies back into the morass of uncertainty.

This proposition of starting a company and of carrying it along through difficult years is an exciting and challenging existence. However, those who would receive

the rewards of industry at the management level must be prepared to give of themselves in very large measure. They must be prepared to give in terms of imagination, of energy, of worry, and of persistence.

It is here in America, however, that an individual or group of individuals, utilizing those qualities, can bring into being a corporate entity that rewards the founders and management, that provides income to those who have invested money in the business, that produces gainful employment for thousands of our citizens, and that produces useful products and services that consumers need or want. This has been the case with many companies in the television business, which is but a small segment of the entire electrical-electronic industry. And it has been the case with virtually every company in the hundreds of individual industries that together constitute our American economy.

*Revolution comes to the office*



"The brake that office operations are applying."

**WALTER H. WHEELER, JR.**

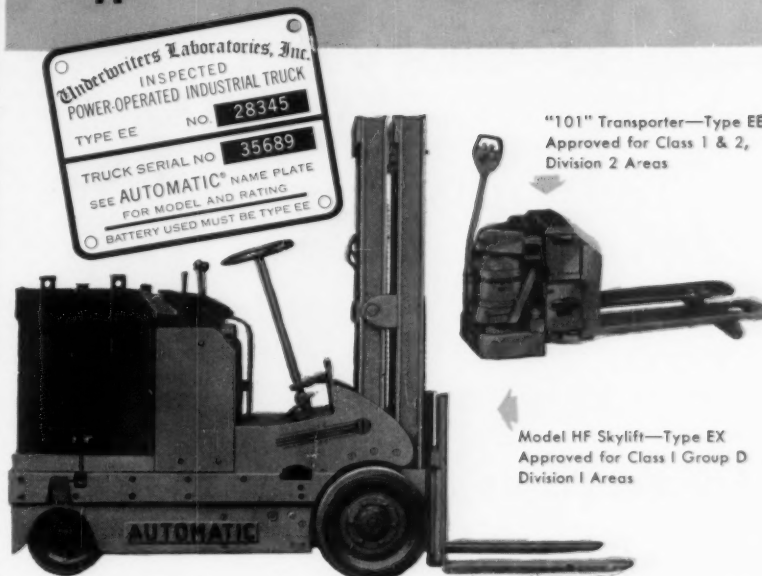
President, Pitney-Bowes, Inc., before meeting of Office Executives Association.

It seems obvious to me that a revolution in office work is overdue. There just aren't enough potential employees available each year to keep up with the demand, assuming we continue to grow and prosper as we want to do. And even if there were, business paper work has grown excessively costly and confusing, and is getting more so all the time.

We in American business are justifiably proud of our record for increasing productivity in this country, and sharing the wealth with an ever-increasing number of persons. But unless we recognize the brake that office operations are applying to this growth, we cannot duplicate in the next generation what we have done in the past.

Assuming we are serious about the American commitment for con-

## ANOTHER Automatic "FIRST" Underwriters' Laboratories Approved Type EX and EE Industrial Trucks!



**Type EX—UL-approved for operation in hazardous locations**

AUTOMATIC proudly announces Underwriters' Laboratories Type EX approval for 2,000, 3,000 and 4,000 pound capacity models of HF Skylift electric trucks... the first time UL has given any industrial truck approval for use in hazardous locations involving fire and explosion! Thus, an electric fork truck is at last available, fully acceptable for use in these areas.

Moreover, the UL's specifications are used by the National Fire Protection Association as the basis for insurance policies throughout the country—and these EX rated Skylift trucks therefore meet National Fire Protection Association requirements as well.

The Underwriters' Laboratories Label signifies approval of the complete truck, including battery.

**Type EE—UL-approved for operation in semi-hazardous locations**

In addition, Automatic has been given the UL Label of Approval for EE rated trucks, for operation in semi-hazardous locations. These Type EE trucks include Transporters, Transactors, and Transtackers equipped with Type EE sparkproof and dustproof protection. Automatic is the only manufacturer of operator-led trucks with Type EE Underwriters' Laboratories Approval!

As in Type EX trucks, the National Fire Protection Association also bases its insurance policy recommendations for Type EE trucks on Underwriters' Laboratories specifications.

Clearly, if your materials handling operations involve hazardous or semi-hazardous locations, one of these Automatic industrial trucks is your answer! For complete details, mail the coupon.

# Automatic

World's Largest Exclusive Builder of  
Electric-Driven Industrial Trucks

81 West 87th St., Dept. X-3 Chicago 20, Illinois

Without obligation, I would like full information on the Underwriters' Laboratories Approved Types "EX" and "EE" trucks manufactured by AUTOMATIC.

Company Name \_\_\_\_\_  
By \_\_\_\_\_ Title \_\_\_\_\_  
Street Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

MAIL COUPON TO-  
DAY for complete  
information on these  
AUTOMATIC models  
approved by Under-  
writers' Laboratories!



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Certified Quality

The World's Largest Stocks

Carbon, Alloy, Stainless

Fifteen Plants from Coast to Coast

Metallurgists and Veteran Steel Men

Sawing, Shearing, Flame Cutting

Immediate Shipment

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## Ryerson Steel Service

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STRUCTURALS • PLATES • SHEETS • TUBING • METAL WORKING MACHINERY  
AND TOOLS • GLYCO BABBITT METAL • RYERTEX PLASTIC BEARINGS

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILA-  
DELPHIA • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO  
MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

stant improvement, we simply must have a revolution in the office—a revolution that will streamline and reduce paper work, that will increase job responsibilities, job interest, and job earnings, that will utilize the machinery available and yet to come.

*Just what "age" is this?*



JAMES COPE

*Vice-president, Chrysler Corporation, before Detroit Chapter, National Association of Cost Accountants.*

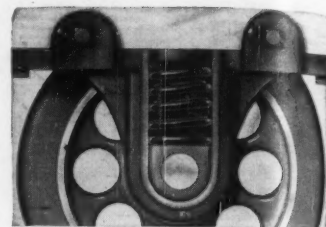
At the outset I'd like to say a few things about this part of this present century being still the Automobile Age, despite the claims of proponents of newer things which loom so very big to-day.

Viewed from one aspect, this is unquestionably the Air Age. The airmen, who now have celebrated their 50th year of flight, have literally remade the dimensions of the world. They have chalked up an almost limitless list of betterments to our living—they have drastically affected political and other institutions, and have wiped out for all time the security of distance.

Exponents of electronics have a claim to domination of our times. We could spend all night reciting ways in which they have modified the labor of the world, and by morning someone would come in with something new. On one side they shake the entertainment supremacy of Hollywood, causing millions of people to stay home evenings who never enjoyed doing so before; on another they aim at us, or for us, strange and unbelievable missiles of destruction which make jet planes and bombers bearable prospects by comparison.

Then the chemists have their claims, and beyond them the nuclear physicists. Unquestionably, the Atomic Age is a measure of the times of man, a portent of changes to come that is still beyond our comprehension.

All these great forces are with



Special tempered spiral springs keep load level while absorbing shocks of an uneven floor.

**PRODUCT SAVER**

**MAN SAVER**

**FLOOR SAVER**

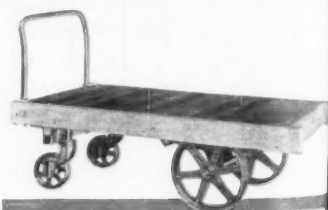
## Weld-Bilt

SPRING BEARING TRUCKS

Here's the answer to your problem of moving materials more efficiently, with maximum protection to product, trucker and floor.

On Weld-Bilt Spring Bearing trucks, your materials move without jarring or vibration. Your truckers work faster and easier, with less fatigue. Floor drains and door sills are protected against damage, as wheels "step" over obstruction.

Because of Weld-Bilt's shock-absorbing spring bearings and other superior mechanical features, trucks last as much as 50% longer. Spring Bearings are featured on Weld-Bilt platform trucks of all styles and designs. Write for bulletin.



**WEST BEND EQUIPMENT CORP.**

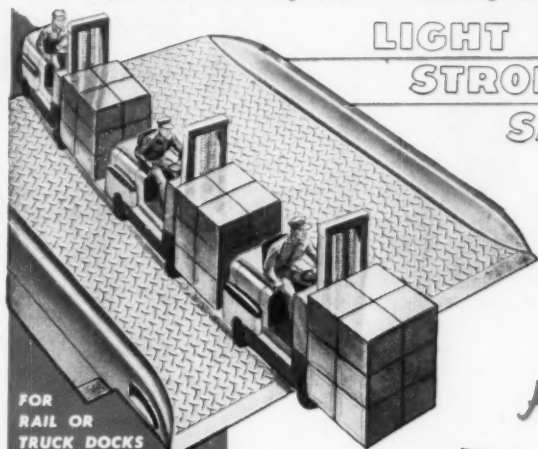
Materials Handling Engineers  
303 WATER STREET, WEST BEND, WIS.

## LOADING OPERATIONS

# CHOKED..

Are overtaxed shipping and receiving facilities jamming up the loading dock . . . putting a stranglehold on output? Are efforts to increase production and profits hampered by lack of additional loading capacity? There is one *proved* way to multiply loading capacity . . . eliminate bottlenecks . . . prevent costly tie-ups—*and all without major capital expenditure!* Do as many thousands of leading companies have done. Equip your docks with magnesium-light, magnesium-strong Magliner Dock-Boards! With these low-cost, high output units in operation, you can speed material flow . . . establish faster, easier-access transit between plant and freight carriers . . . and cut loading time to a new low!

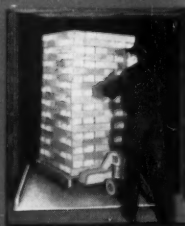
Magliner Dock Boards present no expensive installation problem! No fixed inflexibility! Magliners are permanent . . . yet you can move them about, *whenever and wherever you wish!* Fabricated of the world's lightest structural metal, Magliner Dock Boards are easily handled by one man. Of bridge design construction they are capacity rated to handle the heaviest of loads and equipment. Available in 34 standard models, as well as custom engineered to exact requirements. Get the benefits of smoother, faster lower-cost loading! Get the facts on Magliner!



**LIGHT  
STRONG  
SAFE**

**Mag Liner**  
MAGNESIUM  
**DOCK BOARDS**

FOR  
RAIL OR  
TRUCK DOCKS



### EQUIPMENT UNDERCLEARANCE

Low side curbs, proper board length, precise crowning. All combine to insure absolute underclearance for low handling equipment.

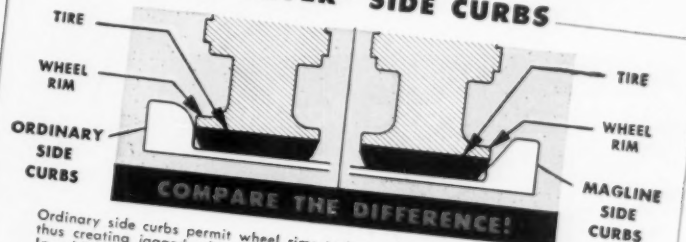
### LONG SPANS

Ample strength, rigid structure, safe, easy crossover. For all span requirements—short or long!



Another great new First from Magliner!

### "TIRE SAVER" SIDE CURBS



Ordinary side curbs permit wheel rims to bear against and wear into the curb, thus creating jagged edges which soon result in costly, needless tire damage. In addition, such forceful contact weakens the side curb and shortens service life. Design of the new Magliner "Tire-Saver" side curb specifically prevents metal-to-metal contact . . . wheel-to-curb collision—eliminating the single biggest cause of tire and dock board damage!

WRITE TODAY for Information Bulletin DB-204R

MAGLINE, INC. • P.O. BOX 350 • PINCONNING, MICH.

# KELLER Air Tools

for high speed assembly



ANOTHER EXAMPLE OF  
KELLER Air Tools engineered to industry

Wherever parts are assembled with screws, nuts, bolts or rivets, the use of Keller Tools speeds up production, reduces costs, and makes work easier.

For example, in assembling record players (shown above), changing to Keller Air Tools made the work easier and faster, and substantially reduced production costs.

## FACTS IN BRIEF ABOUT KELLER PNEUMATIC SCREW DRIVERS

- Interchangeable parts
- Reduce operator fatigue
- Clutches, socket drivers, 45° and 90° attachments for every purpose



Send for  
**FREE 36-Page Booklet**  
for more information and interesting  
ideas on air tool application

**KELLER TOOL COMPANY**  
Grand Haven, Mich.

Please send me a free copy of your booklet on Pneumatic Screw Driving and Nut Setting Tools

Name..... Title.....  
Company.....  
City..... Zone..... State.....



Weight less

Consume less air

Need fewer "back-up" parts in the tool room

Wide variety of handles, gearings, torques, speeds

us, mending our habits of life, our attitudes and actions so surely and so constantly that we have to stop and reflect if we are to measure the changes they have brought us.

Yet, against these I hold with assurance that the truly dominant tool of our times is the automobile, along with its satellite fleet of internal combustion power devices, but essentially the car itself—the four-wheeled personal carrier.

Possession of an automobile, among us now is a privilege open to just about every person willing and able to earn a little money. Yet that possession constitutes a taking hold of liberty—an act of freedom—a mastery by the individual of a hugely multiplied alternative of choices—choices in everything: where we live, where we work, where we play, where we buy, where we go, where we stay.

## The value of association



GEORGE W. SCHWARZ

Vice-president and Treasurer, Wyandotte Chemicals Corp., before annual meeting, Controllers Institute of America.

"... so vital a part of our native scene."

We are members of the one form of society in which organizations flourish. When we use the term "democracy," we instinctively describe it in terms of government, from the town meeting and the township committee up to the halls of Congress and the White House.

But there are other facets; and among the brightest of these are the associations, clubs, fraternities and societies which are so vital a part of our native scene. Counting only those that are large enough to dignify their meetings with the name "convention," there are over 20,000 in the United States and Canada.

The genius of Americans for banding together into organizations for mutual benefit and the public interest is well recognized. Again we are inheritors of something vast and fine.

# Don't Walk... TALK!



## THE NEW EXECUTONE INTERCOM

Saves steps, increases  
output, cuts costs!

Compute the cost of time wasted by executives and employees running back and forth. That's how much the NEW Executone Intercom can save you! Your voice—with lightning speed—gets information, gives instructions. Your employees accomplish more, too, with inter-departmental communication. "Inside calls" no longer tie up telephone lines. Office and plant operate at a new peak of efficiency!

Years ahead of its time  
in operation and design!

"CHIME-MATIC" Signalling announces calls with a soft chime and signal light, saves time on every call. New switching circuits for every need make new savings possible. Voices are clearer, distinct, instantly recognizable. Inexpensive 2 station system easily expanded. See it—no obligation. Just mail the coupon.

# Executone

GET THE  
FACTS

COMMUNICATION AND  
SOUND SYSTEMS

EXECUTONE, INC., Dept. M-1  
415 Lexington Ave., New York 17, N. Y.  
Without obligation, please let me have:  
☐ The name of your local Distributor  
☐ Complete descriptive literature  
NAME.....  
FIRM.....  
ADDRESS..... CITY.....





## PHOTO VISIT

*This brand new \$11.5 million building makes life much easier for the designers of Ford's future cars and trucks. Devices, lights and layout were carefully planned to help the men as much as possible in their work. View is of round showroom, and one wing.*

# BUILT-IN AIDS *for Product Designers*



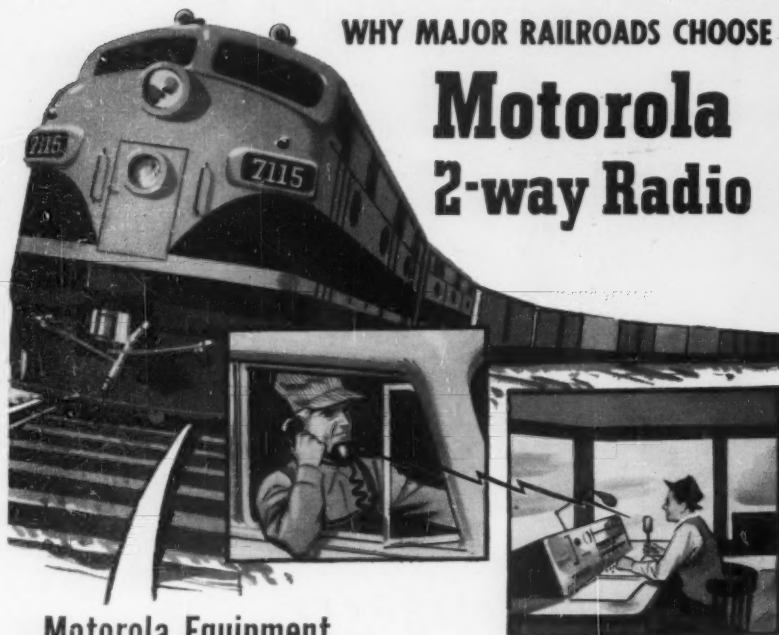
Electrically operated doors reflect care paid to details. Car can be moved quickly, easily from styling studio (see page 22) to display yard (right).

**F**ORD'S STYLING building is the fourth structure to be completed in the series planned for its Research and Engineering Center at Detroit. How the building is as useful as it is ornamental shows up in the photos on this and the following pages. Its exterior is of brick, limestone, and aluminum. Large panes of glass, aluminum framed, cover a considerable area, providing both good natural light and good looks.

Inside what is called the studio wing, where life-size clay models are constructed, a cove lighting system uses alternate mercury vapor and incandescent illumination. Rays, directed through glass prisms, furnish even lighting for modeling work (see page 22). Beside the studio wing, the building has a two-story design and office wing, a rotunda with three built-in turntables to inspect proposed models, and a display garden.



This "back yard," shielded by building and serpentine wall, simplifies product inspection under natural light. Yard has own turntable for cars.



WHY MAJOR RAILROADS CHOOSE

## Motorola 2-way Radio

**Motorola Equipment**  
paid one railroad company\* a 400% return on  
its initial cost during first year in operation!

**JUST A FEW OF THE MANY  
COMPANIES DEPENDING  
ON MOTOROLA SYSTEMS:**

**2-Way Radio**

Kennecott Copper Corp.  
American Tel. & Tel. Co.  
Baldwin Locomotive Works  
Sinclair Oil Co.  
Allis-Chalmers  
Thompson Products, Inc.  
Pennsylvania R. R.

**Microwave**

Pacific Power & Light Co.  
Shell Pipeline Co.  
Southern Counties Gas Co.  
Pan American Pipeline Co.  
Dayton Power & Light Co.

**Industrial Control**

Brasos River Electric  
Transmission Co-op  
Minnesota Power Co-op  
Missouri Power & Light Co.

*Mail Coupon Today  
for the Complete  
Motorola 2-way Radio  
Story*

American industry has chalked up phenomenal dollar savings through wide use of Motorola 2-way Radio.

One major railroad estimates its 2-way Radio system paid for itself four times—a return of 400%—during its very first year in use. Split-second communication lowered costs by coordinating activities of yard and terminal personnel, train crews, special snow-fighting and emergency equipment. Remarkable savings were evident as soon as 2-way radio was installed.

Put Motorola's 24 years of research and development to work for you. Eight exclusive Motorola features guarantee top performance, low operating costs, obsolescence-proof design. Write today.

\*Name in our files

# Motorola®

Communications & Electronics, Inc.

A SUBSIDIARY OF MOTOROLA, INC.

900 N. Kilbourn Ave., Chicago 51, Illinois  
Rogers Majestic Electronics Ltd., Toronto, Canada

Motorola Communications & Electronics, Inc., Dept. 2286-DR  
900 N. Kilbourn Ave., Chicago 51, Illinois

- ☐ Please send detailed information describing Motorola's 2-Way Radio System. ☐ Have your local engineer call me for an appointment.

Name \_\_\_\_\_

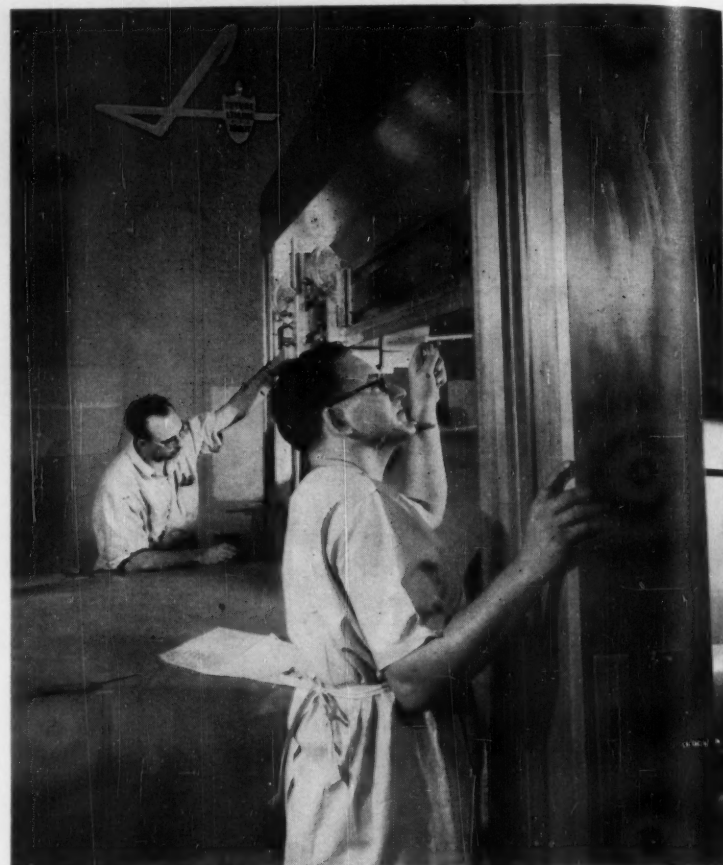
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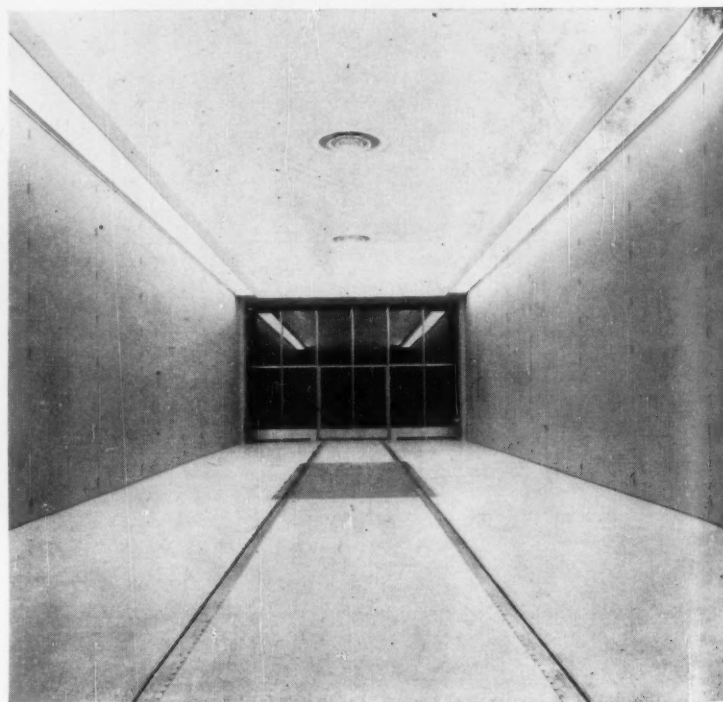
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

### BUILT-IN AIDS

*continued*



Work bridge, developed by engineering staff, moves along rail splits in floor of a studio; guides men molding a full-scale clay model.



Twelve such studios give ample modeling-work space. Side walls can open to enlarge area; illumination system provides even lighting for the work.



# Yesterday's wasteland...

## today's harvest land

*Farmers boost yield per acre with commercial fertilizer from plants designed, equipped and built by Link-Belt*

TODAY fertilizer is being produced commercially at a rate nature cannot match. Improved techniques provide low-cost fertilizers with exact amounts of specified elements thoroughly blended.

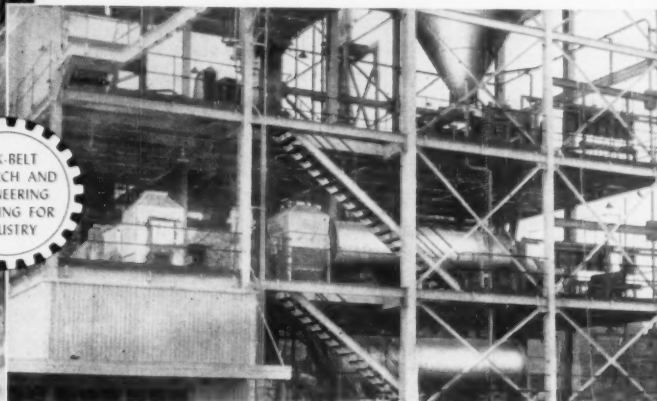
As a leading manufacturer of conveying, processing and power transmission machinery, Link-Belt plays an important role in this development . . . offers producers a unified, single-contract responsibility. Link-Belt performs the testing, develops the process, makes the equipment, erects the plant and puts it in full operating readiness.

In this and many other fields, Link-Belt does far more than supply equipment. You are invited to investigate Link-Belt's total engineering facilities. Call your near-by Link-Belt district sales office.



**One source . . . one responsibility for materials handling and power transmission machinery**


LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarborough (Toronto 13); Australia, Sydney; South Africa, Springs. Representatives Throughout the World. 13,956

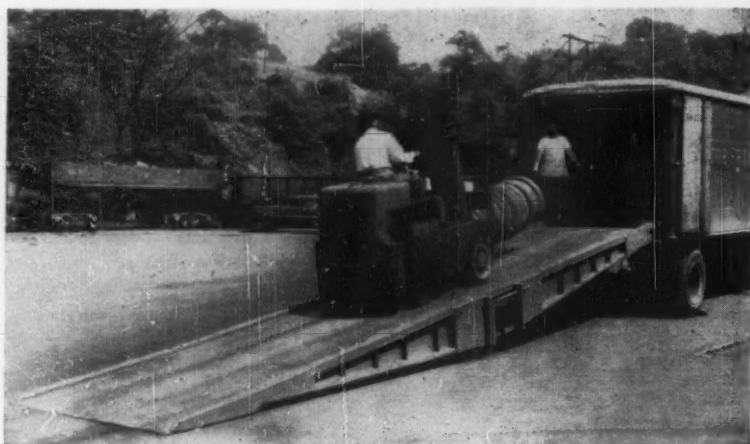


Ammonium nitrate plant, shown before completion of building, reveals variety of Link-Belt equipment used in conveying, drying, cooling, mixing, elevating, screening. For complete facts on Link-Belt equipment for commercial fertilizer plants, send for Book 2459.

Photo (left) courtesy Farm Quarterly



LOOKING INTO THE FACTS... LEADS INEVITABLY TO **MAGCOA** 



## "Trailer-Loading Time Cut in Half... WITH OUR MAGCOA PORTABLE YARD RAMP"

— Reports Frank Gray, Traffic Manager, Universal-Cyclops Steel Corp., Bridgeville, Pa.

"We now load 400,000 lbs. of steel products in an 8-hour shift; have released two men for other duties—direct benefits of our MAGCOA Yard Ramp," says Mr. Gray.

Universal-Cyclops Steel Corporation was one of the first to cash in on the time-money-and-manpower savings possible with the revolutionary new MAGCOA Portable Magnesium Yard Ramp that permits truck-loading and car-loading from ground level.

Here's what you'll find when you look into the MAGCOA Yard Ramp—

- One man moves it.
- Hydraulic lift helps position it.
- You get fuller use of present facilities, lift trucks and operators.
- Bridge-type construction of rugged magnesium—by magnesium fabricating specialists.

- Capacities to 16,000 lbs. in five standard sizes.
- Exclusive MAGCOA quarter-round safety curbs and rounded end-castings protect workers, lift trucks and loads.
- Low cost—less than conventional stationary docks in most of U. S.
- Prompt delivery from mass-production factory.
- Enthusiastic users from Coast to Coast.

Look into all the facts! Send for literature showing how the new MAGCOA Portable Yard Ramp can speed ground-level loading for you.

At the same time, look into how MAGCOA light-weight, heavy-duty Magnesium Dockboards can speed your dock-level loading.

Use the handy coupon.



Yard Ramp features one-man positioning



Magcoa Yard Ramps speed car-loading, too

## MAGNESIUM COMPANY OF AMERICA

MATERIALS HANDLING DIV., EAST CHICAGO 9, IND. — Representatives in Principal Cities

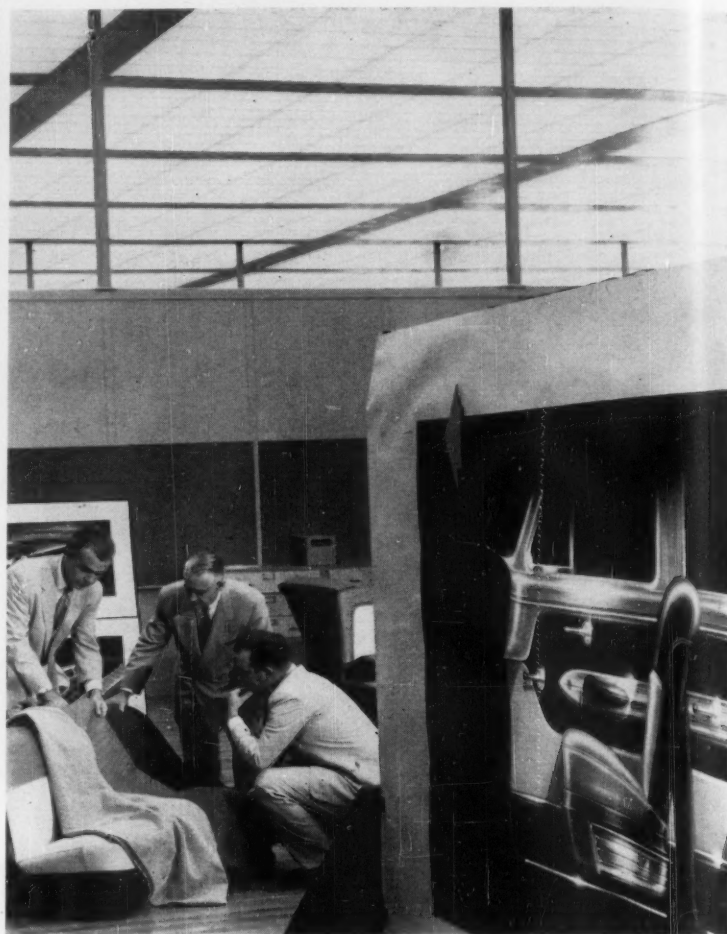
### DIVISION OFFICES:

NEW YORK 20,  
30 Rockefeller Plaza  
PHILADELPHIA 18,  
8801 Southampton Ave.  
WASHINGTON 5, D. C.,  
Walker Bldg.  
HOUSTON 17,  
7657 Main St.  
LOS ANGELES 34,  
8922 W. 25th St.  
SAN FRANCISCO 4,  
Russ Bldg.

Please send <input type="checkbox"/> Yard Ramp Literature <input type="checkbox"/> Dockboard Facts	9
Name & Title _____	
Company _____	
Address _____	
City-Zone-State _____	

## BUILT-IN AIDS

continued



Building includes special work space, good lighting and work facilities for men designing car interiors. Here, some upholstery fabrics get the onde-over.



Another view of facilities and space allotted to stylists of car interiors. Note the egg-crate ceiling lighting used throughout; good work arrangement.

yesterday's  
experience is  
today's knowledge



**METAL  
POWDER  
PARTS BY  
MORaine**

While we've had a large amount of experience (over a quarter century) in making *billions* of metal powder parts, there seems to be no limit to our learning. Always there is something new to learn, something valuable to add to our already vast store of knowledge on the subject of powder metallurgy.

We find new ways to improve the physical properties of our metal powder parts; we see a constant broadening in the range of materials we can offer our customers; and the number of applications for our metal powder parts grows with our knowledge.

We're proud of the position we've reached in the field of powder metallurgy . . . but no prouder than we are of the way our products are able to serve industry by improving performance while cutting costs.



**moraine  
products**

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO





## "A good girl is hard to..."

*find"—for office work, these days. Sometimes hard to keep, too, with so many office jobs available. In a small office, the DM can do a lot for secretarial efficiency and morale!*



The electric RS for larger mailers, stamps and seals 175 letters a minute.

- The DM is the desk model postage meter, a big help with that tedious, day-end mailing job. It does away with old fashioned stamps, stamp-licking and safeguarding.

- With the DM, you *print* postage, any amount needed, directly on the envelope—or on special tape for parcel post—plus your own small ad, if you like. Has a moistener for sealing envelope flaps. Saves time, and usually postage!

- You always have the right stamp on hand. Your postage is fully protected from loss or damage, is automatically accounted for on visible registers.

- Other models, hand and electric, for larger mailers. Call the nearest PB office. Or send the coupon for the free illustrated booklet.

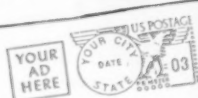
**FREE:** Handy wall chart of Postal Rates with parcel post map and zone finder.



**PITNEY-BOWES**  
**Postage**  
**Meter**

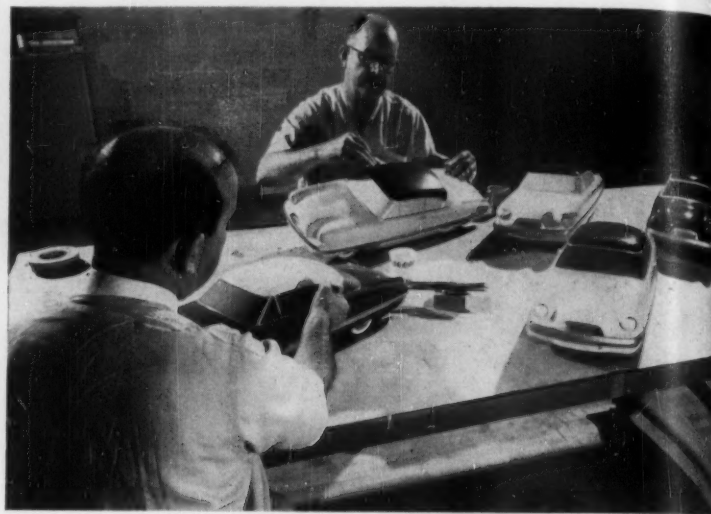
Offices in 93 cities in the U.S. and Canada

PITNEY-BOWES, INC.  
1596 Pacific St., Stamford, Conn.  
Please send free ☐ booklet, ☐ wall chart to:  
Name \_\_\_\_\_  
Address \_\_\_\_\_

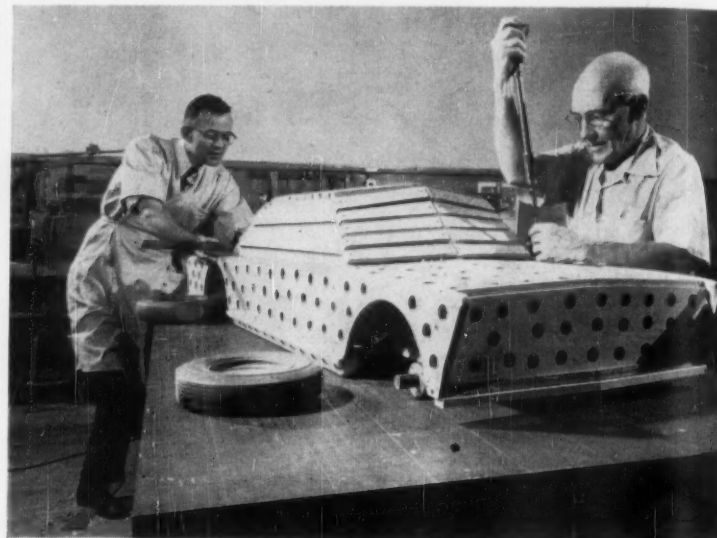


## BUILT-IN AIDS

continued



Spaciousness for all: No squeezed quarters even for those men experimenting with color combinations on these miniatures in the building's paint shop.



Large, uncluttered basement areas are for woodworking, metal working, spray booths, and so on. Model being prepared here gets clay cover later.



Although down below in the basement, these men work under plenty of light as they construct brake and clutch pedal assembly in building's wood shop.





DEVANEY PHOTOGRAPH

## Letters

### TO THE EDITOR

#### FILM FUND

Richmond, Cal.

Dear Sir:

In your September issue, on page 116, you have a paragraph stating that films may be secured at our Richmond library. Thank you for this unsolicited but greatly appreciated bit of advertising.

Business firms in all parts of the country have written to us requesting our film catalog. However, I believe that many more of your subscribers would take advantage of our free film service if they knew we have a library at 15 East 53rd St., New York 22, N.Y., serving the Eastern Seaboard, and another library at 16,400 Michigan Ave., Dearborn, Mich., serving the Central States. . . .

M. F. O'Donnell

Distribution Supervisor  
Motion Picture Section  
Ford Motor Company

#### TEERING OFF

Brooklyn, N.Y.

Dear Sir:

Regarding Dr. Geoffrey H. Moore's article, "Analyzing the Economic Cycles" (DUN'S REVIEW AND MODERN INDUSTRY, October), Dr. Moore's work and that of Drs. Mitchell, Burns and the National Bureau of Economic Research, here are some thoughts on the matter.

Although this is a workmanlike job as far as statistical preparation goes, its intellectual content is simply this: a number of statistical indicators which have already been

employed retroactively to determine and define previous periods of economic decline and ascent are converted into a curve and this curve is then imposed upon a chart of the periods of ascent and decline that these same statistical indicators have been used to determine and define.

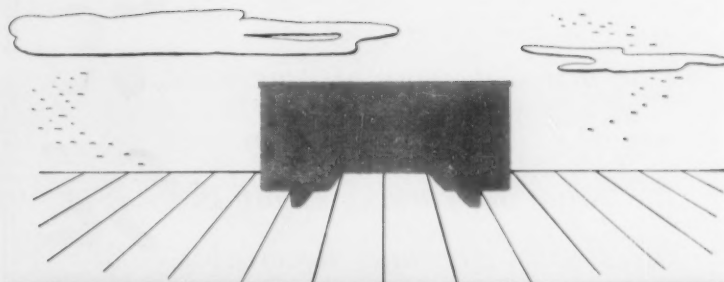
It is then pointed out how the curve dips in periods of economic decline and rises in periods of economic ascent. The miracle would be done in this work only if the rises and falls didn't coincide in as much as two identities are being compared.

To put it another way, the same thing would be done if you first defined all hard, round, white objects with dimples as golf balls and then after years of research came up with the conclusion that all golf balls are hard round objects with dimples.

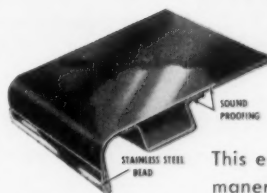
This work is another result of the attempt to substitute statistics for thinking instead of assigning them their proper roles of testing the conclusion of objective economic thought.

To solve the economic cycle and thus stop our constant gravitation towards state capitalism (a gravitation sure to be accelerated in the next depression) we must deter-

On page 59 of the November issue the location of the Elastomer Chemical Company was incorrectly stated. The company is in Newark, N. J.—Ed.

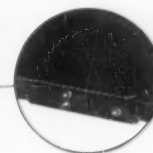
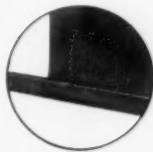


*new horizons of office efficiency with*  
**BROWNE-MORSE DESKS**



You add distinction, efficiency and comfort to your office with new Browne-Morse Desks. Right height, **plus** beauty, **plus** durability make your desk work natural and relaxed.

This exclusive "Time-Tested" Plastite Top, permanently laminated to 16-gauge steel, gives an ultra-smooth writing surface that is wear-proof, burn-proof, stain-proof, pleasant to touch, fully insulated against sound and vibration.



The famous Browne-Morse GLIDER SUSPENSION PRINCIPLE gives smooth ball-bearing performance, operates in a contoured raceway with quiet, sturdy, nylon guides for ease of operation regardless of load.



These are only two of the **twenty-six** features that make Browne-Morse desks leaders in office efficiency. Those features are presented in detail in the new BROWNE-MORSE CATALOG.

**Write for Catalog Today!**

**Browne-Morse**  
COMPANY  
MUSKEGON, MICHIGAN



*The prime purpose of American Credit Insurance is to guarantee the value of Working Capital invested in Accounts Receivable.*

**There are twelve major contributions that American Credit Insurance coverage makes to maximum sales efficiency and sound financial management.**

**O**UR booklet gives essential facts about these important benefits quickly and simply. May we mail you a copy? Phone our office in your city or write **AMERICAN CREDIT INDEMNITY COMPANY OF NEW YORK**, First National Bank Building, Baltimore 2, Md. Just say, "Mail me book offered in *Dun's Review and Modern Industry*."



*Credit Insurance is a Credit Tool... It is never a Substitute for a Credit Department*

**American Credit Insurance**



mine not so much how these statistical indicators operate... but why; and find the economic forces which cause their aberration.

I have worked for many years towards this goal myself, evolving a new economic theory which has, many months before statistical indicators revealed them, called the turns of the economy, including the incipience and termination dates of Dr. Moore's abortive recessions. . . .

*John V. Collins*  
Economist

ACCIDENTALLY YOURS

Detroit, Mich.

Dear Sir:

We, here at General Motors Technical Center, subscribe to your magazine and enjoy it very much. I especially enjoyed the article in the September issue called "How to Have an Accident" by Alfred G. Larke, your Employer Relations Editor.

If it is at all possible, I would appreciate twelve reprints of this article for distribution to some of our supervisors.

In my opinion it carries an excellent message that offends no one but carries a terrific impact. . . .

*Mert L. Carpenter, Jr.*  
Personnel Safety  
Technical Center Service  
General Motors Corp.

Chicago, Ill.

Dear Sir:

The piece in the September issue on accidents and how to have them is a honey; we are all delighted.

Thanks a million—and be sure not to have one yourself. . . .

*Paul Jones*  
Director of Public Info.  
National Safety Council

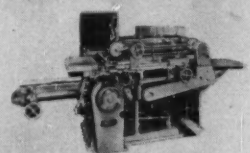
Memphis, Tenn.

Dear Sir:

One of our clients, an industrial supplies firm, has recently established a safety department. This company is interested in mailing to their customers reprints of your fine article, "How to Have an Accident," beginning on page 51 of the September issue of *DUN'S REVIEW AND MODERN INDUSTRY*. . . .

May I add my congratulations to the many you must have received on your new magazine. It's a beautiful job.

*Bill Caldwell*  
Greenshaw and Rush, Inc.



**"WE RECOMMEND THIS LUBRICANT TO OUR CUSTOMERS"**

—says **PACKAGE MACHINERY COMPANY**  
Springfield, Mass.

"We have found LUBRIPLATE Lubricants to be very effective and use them extensively in our machines. To assure the proper use of LUBRIPLATE Lubricants for re-lubrication, we place tags on our machines before shipment. Thus the purchasers of those machines know the LUBRIPLATE Product we recommend for each application and where to obtain it."

For nearest LUBRIPLATE distributor, see Classified Telephone Directory. Send for free 56-page "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

**REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.**







**QUINCY, ILLINOIS**  
General Office



**QUINCY, ILLINOIS**  
Mill and Filler Factory



**MEMPHIS, TENNESSEE**  
Bruce Carlton Company

# Central Fibre

IS AT YOUR  
**SERVICE**  
**IN 14**  
**CONVENIENT**  
**CITIES!**



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**MARSHALLTOWN, IOWA**  
Marshalltown Container Company



**QUINCY, ILLINOIS**  
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Mill and Filler Factory



**ST. LOUIS, MISSOURI**  
American Folding Box Division



**TAMA, IOWA**  
Mill and Filler Factory



**OMAHA, NEBRASKA**  
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Paperboard Materials  
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Folding and Set-Up Boxes  
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**NORTH KANSAS CITY, MISSOURI**  
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Pomeroy Manufacturing Company



**DENVER, COLORADO**  
Continental Paper Products Company



**DENVER, COLORADO**  
Denver Mill & Inland Paper Box Division



**SALT LAKE CITY, UTAH**  
Western Paper Products Division



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Central Fibre Products Company Warehouses



*More Than 80 Years of Continuous Service and Progress*

**CENTRAL FIBRE PRODUCTS COMPANY, INC.**

*General Offices, Quincy, Illinois, Phone 8700*

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A Heinn Sales Tip for You . . .

## HOW TO GET BETTER SALES COVERAGE WITHOUT ADDING A SALESMAN



Representatives in Principal Cities

Coverage increases and costs per call drop when your salesmen use well-organized loose-leaf catalogs and manuals that never get out of date or out of sequence. Heinn planning transforms ordinary catalogs into such *selling tools*, custom-designed to make the most of every minute on every sales call.

Leaders in practically every industry *know* Heinn advantages — patented "3-D" Protecto Process embossing; indexing that saves time, ends fumbling; mechanisms that always work smoothly; custom design that makes covers as individual as the products they promote. Heinn Loose-Leaf Binders last years longer than you'd expect — a fact that means the *lowest operational cost per unit per year*.



Remember . . .  
Heinn helps you  
get *extra sales*  
coverage with-  
out extra cost.

**THE HEINN COMPANY**  
310 W. Florida St., Milwaukee 4, Wis.  
Information, please.

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|--|--|--|
| <input type="checkbox"/> Catalog Covers                | <input type="checkbox"/> Salesmen's Carry-Cases              | <input type="checkbox"/> Salesmen's Binders  |
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| <input type="checkbox"/> Easel Presentations           | <input type="checkbox"/> Acetate Envelopes                   | <input type="checkbox"/> Sales-Pacs          |
| <input type="checkbox"/> Sales and Instruction Manuals | <input type="checkbox"/> Business Gifts as Goodwill Builders |  |

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

**Originators of the Loose-Leaf System of Cataloging**

*Mail This  
Coupon*

### HELP WANTED

Hillside, N.J.

Dear Sir:

In reference to your "39 Compass Points of Business." I suggest that the Civilian Employment column be broken down into three columns, under the same heading, and that columns for total employment and total military employment be included. Columns proposed are as follows:

Total Employment  
Civilian Employment  
Total  
Male  
Female  
Military Employment.

We would then have the facts required to evaluate the impact and nature of important changes in the future.

Have you ever given consideration to showing all employment data in per cent of the total population?

George E. Emery

Westinghouse Electric Corp.

*There was a time, before the outbreak of the war in Korea, when we included a section for military employment among the statistics.*

*After the war started, the size of the armed forces became a classified secret and figures were not available. At present, there is a six month lag between the date of the military employment figures and the date of their availability. We have felt that the usefulness of the Compass Points to business men is in providing the most up-to-date information possible.*

*We agree that it is important, market-wise, for many business men to watch for changes in the proportion of males and females in the working population. These changes, however, are usually less significant from quarter to quarter than for periods of, say, a couple of years.*

*Better even than showing all employment data as a per cent of the total population, might be unemployment as a per cent of the labor force. The current figure is 2 per cent.—Ed.*

### BUILDING NOTES

Winston-Salem, N.C.

Dear Sir:

In your October 1953 *DUN'S REVIEW AND MODERN INDUSTRY*, page

## Is Your Plant the Only One of 10 Without Modern Bradleys?

Enameled Iron Models  
in White or Forest  
Green.



Precast stone  
models in various  
grades.

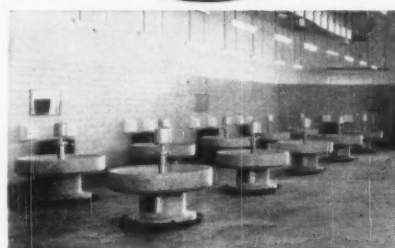
• Visit plants anywhere and you will find that sanitary washing facilities of the modern type are available in practically all of them.

During the past 30 years Bradley Washfountains have become nationally recognized for their sanitary advantages,—clean running water from the central sprayhead, the self-flushing bowl, the foot-control that eliminates faucets and reduces water waste.

They are recognized too as important factors in "human relations."

Bradleys serve up to 10 persons simultaneously, save water, and cut piping connections up to 80%. They are made in precast stone (various colors), porcelain enameled (white or forest green), and stainless steel.

**BRADLEY WASHFOUNTAIN CO.**  
2275 W. MICHIGAN ST., MILWAUKEE 1, WIS.



Group of 10 Bradleys in West Coast assembly plant in California.

**BRADLEY**  
*Washfountains*

Distributed Through Plumbing Wholesalers

WRITE FOR  
CATALOG 5204





## Owner goes 'round the world in 40 seconds!

With this new multi-wave portable you can circle the globe in the time it takes to twist a dial.

That's because the RCA Victor Strato-World radio has Electronic Band Spread Tuning.

Instead of being squeezed together on one band segment, short-wave stations are in spread formation across the dial of your 7-band Strato-World. You can tune London, Rome, Moscow, Tokyo just as you do the local stations.

There's real *one-handed* portability, too. The Strato-World is a trim 23 pounds, including batteries . . . or it can be plugged into an electrical outlet.

Here is the performance, the engineering and design you've come to expect from RCA Victor, a division of the Radio Corporation of America. See this globe-trotting, pace-setting portable at your RCA Victor dealer's.



**RADIO CORPORATION OF AMERICA**

*World leader in radio—first in television*



## WHERE PRECISION COUNTS

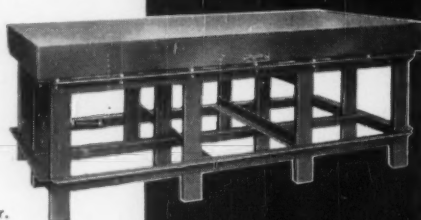
SPECIFY

# Challenge®

Challenge offers a wide selection of precision equipment for layout, inspection, checking, lapping, welding and assembly operations. Note the features of these time-saving devices—and send for the Challenge catalog which gives full details on the complete line.

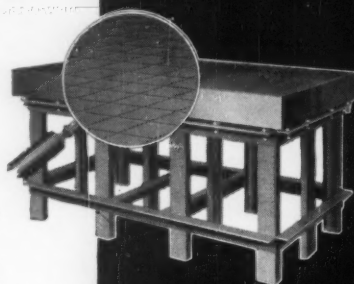
### LAYOUT SURFACE PLATES

Built of special analysis semi-steel with a smooth, square surface-precision ground or planer finished. Standard sizes range from 12" x 18" to 54" x 144". Plates can be grooved and keyed so that two or more can be assembled into one huge unit of unlimited size. Surface Plates with "Tee-Slots", grooving, scoring or machining are available on special order. (Tee-slots cannot be added after plates are made.) All-steel stands are arc welded for rigidity. Lock leveling screws assure a perfectly level surface.



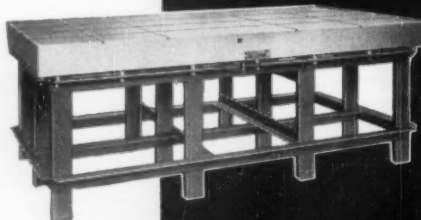
### LAPPING PLATE

Designed for precision lapping of delicate joints on which no sealer is used. Ideal for crank cases, cylinder heads, gear housings and other parts which must be lapped perfectly to avoid oil leaks. Plates have 1/16" grooves, 1/2" apart, running the full length and width of the surface.



### WELDING TABLES

Built of special analysis semi-steel to provide a smooth, accurate surface with "Tee-Slots" for assembling, locating and welding. They are available in three standard sizes: 30" x 60", 48" x 96" and 54" x 144"; other sizes to order. A sturdy all-steel stand with leveling screws is included with table.



### WORK BENCHES

Durable cast-iron top two inches thick—will not warp, shrink, splinter or burn. Leveling screws insure a perfectly level and accurate surface. Legs are strong and solidly braced. Three styles . . . Four sizes: (top dimensions) 28 x 48 and 28 x 60 with four legs; 28 x 72 and 28 x 84 with six legs.

745

### THE CHALLENGE MACHINERY CO.

Office, Factories and Show Room:  
Grand Haven, Mich.



76, question 9, answer on page 252, states that Stanford White designed among other things—"and the University of Virginia." Thomas Jefferson and a lot of U.Va.'ers will be interested in this historic note—very sad news. Congratulations on your very excellent magazine. . . .

C. W. Frost  
Brown & Williamson  
Tobacco Co.

P.S.: There is one medium old building there—Geology, I believe, that does not conform to T.J.'s architectural plan for the University of Virginia. It's probably the one. There is a story about someone wanting to give Washington & Lee a building—there was confusion and it was put up at Virginia. Washington and Lee is supposed to have one like it.

*Stanford White was called in to design three new buildings and supervise the restoration of the Rotunda after it was partially destroyed by fire in 1895.*

*When Jefferson designed the University of Virginia, he laid out a long quadrangle which was open toward the South. Mr. White designed three buildings that enclosed this lower end—Cabell Hall, a classroom building and auditorium which is flanked on the right by Cocke Hall, now used by the Art department, and on the left by the Rouss Physical Laboratory.—Ed.*

KUDOS

St. Louis, Mo.

Dear Sir:

I gave our treasurer a note a short time ago for a two year subscription for MODERN INDUSTRY magazine. I am sure the check will go forward in the very near future. Your magazine had been educational in many ways and I, for one, do not intend to discontinue this subscription.

R. A. Buckheit  
Department Manager  
Coca-Cola Bottling Co.

New York, N.Y.

Dear Sir:

After reviewing the contents of DUN'S REVIEW AND MODERN INDUSTRY, I believe it to be interesting and valuable reading and that its broad coverage in the various fields will do much in giving the reader a comprehensive knowledge of what is taking place to-day.

May I suggest, if this has not

## Easy does it!



ADD, SUBTRACT, MULTIPLY, DIVIDE

with the **FACIT** Calculator!

**SIMPLICITY ITSELF**—that's the amazing Facit! It's so easy to operate . . .

**BEGINNERS CAN LEARN** to use Facit in minutes.

**EFFORTLESS, HIGH-SPEED** touch figuring—tap out all calculations on the Facit efficiency-designed 10-key keyboard.

**AUTOMATIC CHECK**—figures remain in all 3 registers.

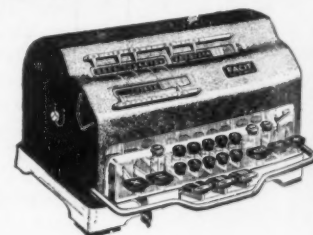
**COMPACT FACIT** takes little more space than a telephone. So light and portable—carry it anywhere.

**TOP CHOICE** in over 100 countries—not just for its simplicity and compactness but businessmen have discovered Facit touch figuring means fastest and most accurate calculating.

**RUSTPROOF, DUSTPROOF, FOOLPROOF**—made of enduring Swedish steel. Finest service—factory trained—in 125 cities from coast-to-coast—backed by 10-year supply of spare parts. Facit makes electric and hand-operated calculators, also famous Odhner adding machines.

# FACIT

MADE IN SWEDEN

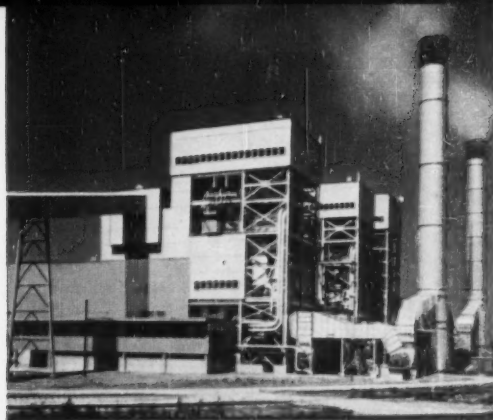


For complete details see your local dealer or write Dept. J, FACIT, INC., 500 Fifth Avenue, New York 36, N. Y. SOLD & SERVICED THROUGHOUT THE WORLD

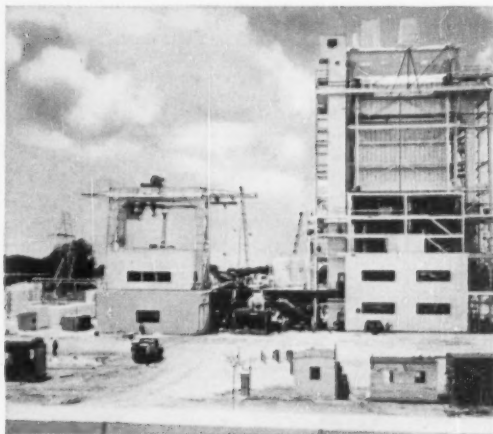




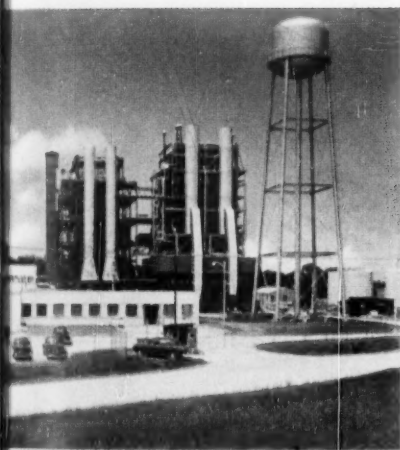
**GREEN RIVER STEEL MILL**—Owensboro, Ky.—Green River Steel Corporation.



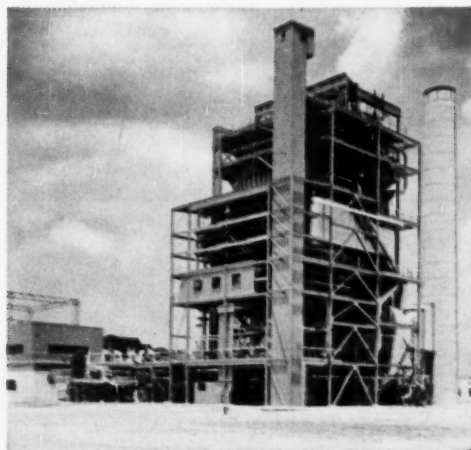
**HAWTHORN STEAM ELECTRIC STATION (Unit 3)**  
—Kansas City, Mo.—Kansas City Power & Light Company.



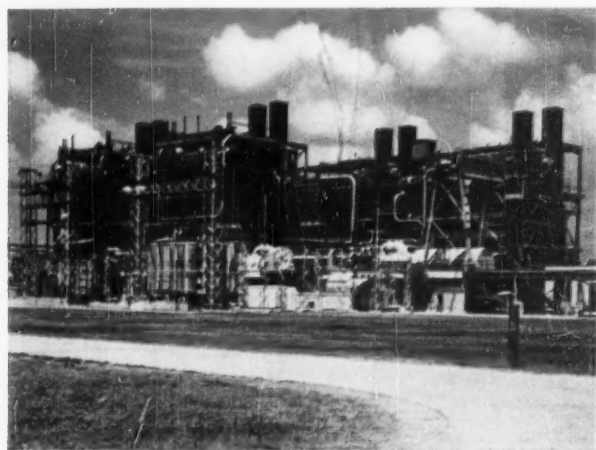
**PARKDALE STEAM ELECTRIC STATION (Unit 1)**  
—Dallas, Texas—Dallas Power & Light Company.



**MINEMILE POINT STEAM ELECTRIC STATION (Unit 2)**—near New Orleans, La.—Louisiana Power & Light Company.



**LAKE CREEK STEAM ELECTRIC STATION (Unit 1)**—near Waco, Texas—Texas Power & Light Company.



**GREENS BAYOU STEAM ELECTRIC STATION (Units 3 and 4)**—Houston, Texas—Houston Lighting & Power Company.



# COLITHO BUSINESS SYSTEM SLASHED ORDER HANDLING COSTS FOR CONSUMERS COOPERATIVE ASSOCIATION

Replaced a cumbersome, costly catalog

Makes pricing for three trading areas easier

Gives customers up-to-the-minute information

Increased sales

Cut billing time one-third

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Wherever paper work requires more than one legible copy, a Colitho Business System can be used to speed the operation, eliminate transcription errors, and cut clerical costs. Colitho paper offset duplicating plates, plain or pre-printed, can be incorporated in single, multiple part, flat pack or roll forms. Colitho Business Systems provide for variables and blockouts, deletions or additions. Partial information can be added at any time. All business paper work lends itself to simplification through a Colitho System.\*

Regardless of the kind of business you are in, Colitho Systems offer time and

money savings in purchasing, manufacturing, distributing, selling, billing and accounting. For more information, mail the coupon attached to your business letterhead.

\*Where spirit duplicating equipment is used, the same results can be obtained with a Columbia Ready-Master System.

Colitho Division  
COLUMBIA RIBBON & CARBON MFG. CO., INC.

## Colitho

OFFSET DUPLICATING  
PLATES AND SUPPLIES

Colitho Division, COLUMBIA RIBBON & CARBON MFG. CO., INC.  
8012 Herb Hill Rd., Glen Cove, New York

Please send information.

Our duplicating equipment is: Offset ☐ Spirit ☐

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already been done, that your publication be brought to the attention of accountants. . . .

Charles Hecht  
Charles Hecht & Co.

## OUT OF MOTHBALLS

Brussels, Belgium

Dear Sir:

A Belgian manufacturer who is producing parts such as gears, sprockets and other metal items is interested in adopting improved methods for the protection of his products. . . .

The usual application of a slush compound has not proven to be satisfactory, and he would like to utilize some process whereby the material is either dipped or sprayed with some form of plastic material that will form a protective coating capable of withstanding corrosion and rough handling.

Another item of interest to this manufacturer is the mothballing of finished assemblies. By this we mean enclosing the product in some form of protective envelope or cover—similar, to the cocoon process being used by the Navy.

We would appreciate it if you could recommend the names and addresses of manufacturers. . . .

Alfred A. Beckwith  
Chief, Defense Prod. Div.  
Mutual Security Agency

We are always glad to recommend trade associations but we refrain from noting companies.—Ed.

## EXECUTIVE SPOTLIGHT

Newport, R.I.

Dear Sir:

Your article in the September 1953 issue was particularly interesting to this office, because we have under consideration the development of field engineers who would assist the contractors in the technical details of ordnance production.

E. G. Newberg, Jr.  
Commander  
U.S. Navy Gen. Torpedo Off.

Montgomery, Ala.

Dear Sir:

It is encouraging to see your publication recognize the importance and the responsibility of the executive. For the past 25 years, I have pioneered in this field. My audits of executive personnel date as far back as twenty years. . . .

R. H. Pearson  
Personnel Consultant

could you  
handle

1,000

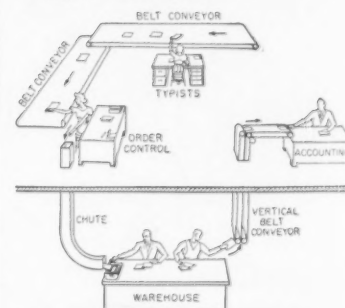
RUSH  
ORDERS

every day?

Smith, Kline, & French, Inc., one of the world's largest wholesale drug firms receives, checks, processes, prices, fills, ships, and enters an average of 1000 orders daily using the Lamson conveyORIZED paper-handling system diagrammed below. Lamson engineers, working closely with company personnel, took most of the "work" out of paperwork—brought about a smooth flow of orders with less manpower and no confusion.

Sixteen typists transcribe telephone orders, placing typed orders on a moving belt conveyor which carries them to the order control station for checking and shipment segregation. A vertical chute conveys checked order forms to the warehouse floor for filling, then to accounting for pricing and entry—high-speed, efficient, low-cost order handling with which Lamson's customer is well pleased.

Large or small, your paper-handling problem can be simplified and solved by a Lamson engineered system. This coupon clipped to your signed letterhead will bring full information.



LAMSON  
Plants  
at Syracuse  
& San Francisco  
Offices in principal cities

## LAMSON CORPORATION

112 Lamson Street, Syracuse 1, N. Y.

Gentlemen:  
Without any obligation on my part, please send more information on how I can reduce my paper-handling costs.

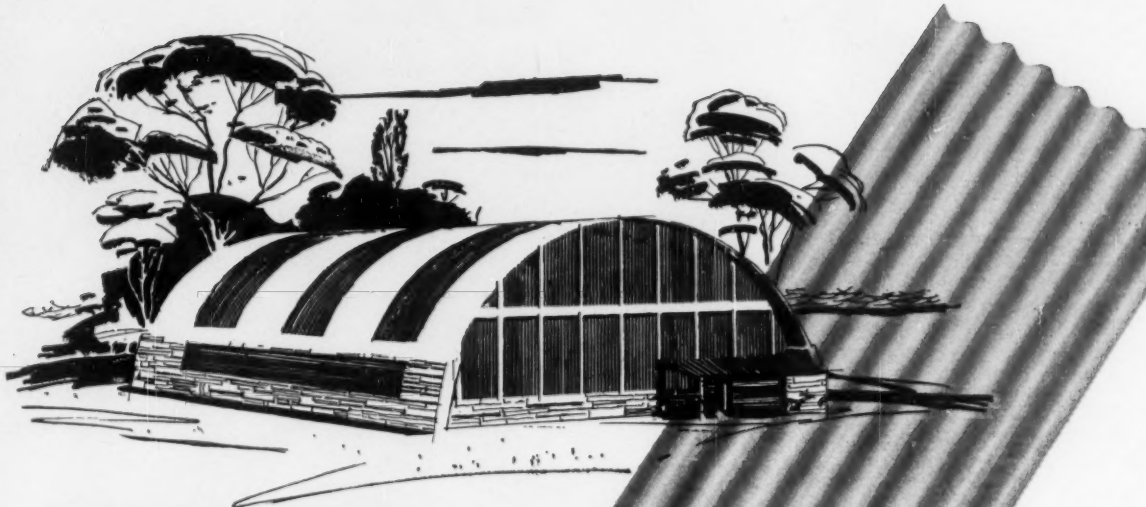
Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





# NEW **AMINAC**<sup>®</sup>

## Light-Stabilized Resins

make non-yellowing glass-reinforced sheets  
— show outstanding resistance to sunlight —

The long-felt need for polyester resins which would resist the yellowing caused by long exposure to sunlight now has been answered by Cyanamid's new *light-stabilized* LAMINAC Resins.

These remarkable resins are particularly applicable to the fabrication of corrugated and flat sheets reinforced with glass fiber. Clear castings show no color change after 500 hours sunlamp exposure, while conventional resins begin to discolor after only 50 hours.

The new light-stabilized resins currently in commercial production are LAMINAC Resin 4113 LS-1 and LAMINAC Resin 4123 LS-1. Of medium viscosity, they cure at room temperatures and may be used for general purpose molding. We recommend their use in such products as translucent building panels, lighting fixtures, boat hulls, outdoor furniture, fishing rods, outdoor displays and other applications in which light stability offers added sales advantages.

These new light-stabilized polyester resins are but a few members of the large LAMINAC family. Only in this large group of polyesters will you find precisely the combination of service properties you need *in superior degree*. Our staff of conveniently located Field Engineers will be glad to help you determine whether there is a LAMINAC resin that can meet your processing and design needs.

**LAMINAC**<sup>®</sup> polyester resins . . .

**BEETLE**<sup>®</sup> urea-formaldehyde molding compounds . . .

**MELMAC**<sup>®</sup> melamine-formaldehyde molding compounds . . .

*Made under rigid controls to  
American Cyanamid's high standards of quality*



**AMERICAN Cyanamid COMPANY**

PLASTICS DEPARTMENT

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In Canada: North American Cyanamid Limited,  
Royal Bank Building, Toronto, Ontario, Canada



INSIDE: T

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THE





INSIDE THIS BUILDING IN WASHINGTON, D. C., THE OFFICE OF SMALL BUSINESS ADMINISTRATION IS READY TO DO ALL IT CAN TO JUSTIFY ITS PURPOSE—HARRIS & EWING PHOTOGRAPH

*It is of considerable advantage to maintain the strength and stability of this large segment of the economy. Help to do so can come from many places, but the greatest aid will emanate from a proper co-ordination of all phases. It is within this realm that SBA may prove its greatest value.*

## Keeping Small Business Strong

WILLIAM D. MITCHELL

*Administrator, Small Business Administration*

CONTINUED FROM COVER

For one thing, SBA has been given greater responsibilities and broader powers than SDPA, in order to provide small companies with more effective assistance in financing, Government procurement, managerial and technical problems, and other needs.

For another, the scope of SBA's work is much broader than that of SDPA. The latter was primarily concerned with small defense and essential civilian producers among some 300,000 manufacturing establishments in the United States. SBA, on the other hand, is responsible for assisting small firms in all fields—manufacturing, distribution, services, transportation, and com-

munications. SBA thus is concerned with the economic health of nearly 4 million small business enterprises. Together, these small concerns make up more than 95 per cent of all American business and account for about one-third of the total national output of goods and services.

In the Small Business Act of 1953, under which SBA was created, Congress stated in unmistakable terms its policy toward Government assistance to small business. This policy, which is SBA's basic guide in carrying out its mandate from Congress, is as follows:

"The essence of the American economic system of private enterprise is free competition. Only through full and free competition can free markets, free entry into business, and opportu-

nities for the expression and growth of personal initiative and individual judgment be assured. The preservation and expansion of such competition is basic not only to the economic well-being but to the security of this nation. Such security and well-being cannot be realized unless the actual and potential capacity of small business is encouraged and developed.

"It is the declared policy of the Congress that the Government should aid, counsel, assist, and protect insofar as is possible the interests of small business concerns in order to preserve free competitive enterprise, to insure that a fair proportion of the total purchases and contracts for supplies and services for the Government be placed with small business enterprises, and to

*Banks can be coldly formal or pleasantly inviting. Whatever the atmosphere, it is to these and similar lending institutions that the small business man should first turn. It is hoped that, ultimately, private sources will fill all the needs of the small companies in trouble.*



DEVANEY PHOTOGRAPH

maintain and strengthen the over-all economy of the nation."

The responsibility for executing this Congressional policy is an enormous one, both in terms of numbers of small business concerns to be served and in terms of importance to the entire economy, of which small concerns are so vital a part.

Obviously, SBA cannot give direct assistance to all small companies, or even to all those among them which are in particular need of emergency assistance of one form or another. To try to do so, and yet at the same time to keep the agency small, efficient, and economical, as we are determined to do, would be an impossibility.

Accordingly, SBA is seeking to promote the welfare of small business concerns by indirect means wherever possible, giving direct assistance only where there is urgent and legitimate need for it. In particular, SBA is endeavoring to strengthen the position of small producers of defense and essential civilian items, whose production is basic to the economy. If the position of these small manufacturers can be strengthened, indirect benefits will result for small businesses

in other fields, including wholesaling, retailing, and service industries.

To multiply its own limited resources, and at the same time to return responsibility for economic problems to its rightful level—to the state and local communities—SBA is working in close partnership with organizations of state and local public officials, bankers, and other business and civic leaders. SBA is encouraging these state and local groups to assume an increasing share of the responsibility for small business problems in their areas, convinced that lasting solutions to the problems will come only through the efforts of local groups, thoroughly familiar with their areas' needs and resources and urged on by the incentive to build better, more prosperous communities.

At the same time, SBA, through its Washington office and its 30 field offices located in key industrial centers, is furnishing leadership and assistance to the state and local organizations. SBA is co-operating with the groups, helping them to get underway, and giving them all possible assistance once they are in operation, but never trying to dominate them.

The small business problems with which SBA and state and local groups are giving assistance fall primarily into three areas:

First, small business needs access to adequate sources of capital and credit on reasonable terms, particularly long-term credit to finance plant expansion, to purchase machinery and equipment, and the like. The credit problems of small firms are more pressing to-day because the tax structure that has been built up during the last ten or fifteen years prevents small firms from accumulating adequate reserves out of earnings to plow back into the business.

Second, small business needs and deserves an equal opportunity to share in the growth of the American economy through placement with it of a fair share of contracts and orders, public and private.

Third, many small companies need assistance in solving their specific managerial or technical problems.

SBA has developed programs to assist small companies in each of these areas, in each in-

*Continued on page 114*



*Among the many small companies which will be helped by the Small Business Administration are the retail outlets all over the country. They have a definite place in*



*the over-all scheme—whether it be for the housewife who shops around, the man who knows what he wants, or the people who just happen to be passing by. Keep-*

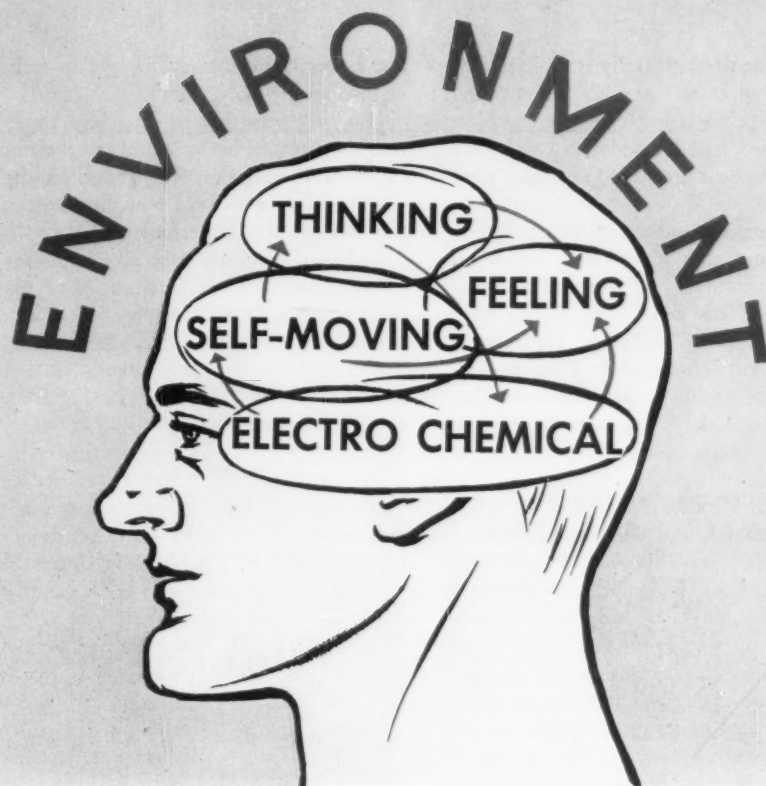


DEVANEY PHOTOGRAPH

*ing them in business, helping them when the going is a little rough, and backing them at all times is good for the community and every individual in it.*



HOW TO analyze yourself and others in operation is a part of the science of general semantics which develops men in control and efficiency of brain work. This drawing is the G.S. description of man's activity areas: thinking (observing, planning); feeling (ambition, annoyance); self-moving (flushing, walking); electro-chemical (the least known to the layman—hormones, electro-shocks). Action in any one area can affect another; environment has over-all impact. Russia's Iron Curtain limits self-moving activities and thereby affects the thinking and feeling areas too. We often appeal to only the thinking area to get across an idea. Hitler worked to win people by appealing to more areas (bands, marching, for example). Appealing to, and interpreting these interactions as a person reacts to words and events, is to know what happens when you communicate with employees. (See text, page 44.)



## A NEW SCIENCE OF THINKING

*for communicating, training, problem-solving*

MARGARET L. JONES  
*Executive Methods Editor*

GENERAL SEMANTICS, a science studied and practised among those who dwell in more rarefied atmospheres than business men are wont to, is coming down to earth, out of the ivied towers and into the business office.

A methodology of disciplined thinking, general semantics (nicknamed G.S.) enables individuals, one might say, to achieve Three-D thinking. It also is a system, some persons point out, that permits brain work to be almost as quality controlled as production work.

At any rate, ardent semanticists are being found more often now among business men who declare G.S. principles and thinking tools of great help in their work. Some executive-training groups are also incorporating G.S. into their courses. (See page 45.)

Alvin Brown, Vice-President for Finance at Johns-Manville Corporation, and others maintain that management is not the science it ought to be owing to one great stumbling block—lack of a common language. The difficulty in coming

to a common understanding of word meanings is sufficient enough, so the argument runs, to upset the communication of thought necessary to create an exact science of management.

You may, or may not, agree with this theory. In fact, emphasis on word meanings scares many so-called "practical" individuals away. They wish to avoid what to them, anyway, seem endless, even fanatical, discussions among semanticists over words. To semanticists, words do not have the ability to describe the social structure accurately because (and most people forget this) words do not have any natural, inherent meaning but only those meanings that are given them by men.

As a branch of logic, however, general semantics would appear to offer even the most matter-of-fact executive much more help than only a better understanding of word-meaning complexities.

To try and give a course in G.S. here would be impossible—as impossible as thinking that, given a list of G.S. do's and don'ts, and armed

with a description of semantic reactions, any executive can walk into a meeting, communicate his message, accomplish his purpose, and walk out again in ten minutes flat.

But a few examples of what happens to semantically orientated people, can indicate the ways in which G.S. helps.

Take the executive's work of planning and problem-solving. G.S. teaches that this work should be "situation-centered." Here's what happened when one group of executives met to discuss the problem of whether or not to carry an incentive-work system (which had been on trial in one department) into other sections of the company.

The men started the meeting on a factual level, and in a co-operative atmosphere. About a half hour later, however, the chairman realized the meeting was going out of control. Everyone was voicing their pet solution, developing partisanship, and the meeting turned into a battle ground not to solve the problem but to defend views and attitudes. It was adjourned without a solution,

and with everyone tired mentally and physically.

Luckily, in this case, however, the meeting was not a complete waste for it became an object lesson. These men had studied G.S., and were serious enough about it to want to practise what they had learned.

Some time later, and once more in a co-operative frame of mind, they played back a wire recording of the meeting, and sheepishly identified, by G.S. standards, what went wrong with their mental machinery that day. Their brain work was not situation-centered. They had assumed because the problem was *announced*, that it was *understood*; they had persistently *prescribed* for the problem instead of *describing* it.

### Where people slip

The noted general semanticist, author, and lecturer, Irving J. Lee points out: "People seem too often to consider a complaint equivalent to a description, a charge the same as the specification." As a result, people can't see what needs correction, and they can't achieve group rapport.

What about the executive's problem of learning to be a successful leader of conferences, small group meetings, and so forth? Take the case of one plant manager who thought he was a competent chairman. Following his usual methods, he called a meeting of his foremen with whom he is most friendly, and urged them to "say what you feel."

This is what happened as he led the meeting: The foremen discussed surface, personal annoyances; the plant manager found a moment in which to say his piece (well thought out in advance of his chance to hear what the foremen would say); and the meeting ended on time.

From a semantically orientated executive's viewpoint, this is what did *not* happen as the manager led the meeting—but should have:

The manager did not throw himself into feeling out the situation as the discussion progressed; he didn't think along with his foremen; and he permitted them to use the meeting as an excuse for solo performances instead of for group accomplishment. The meeting was a flop; and its leader was unaware of his failure.

Semanticist Lee in his latest book (*How to Talk With People*; Harper & Brothers, New York, 1952) gives a down-to-earth guide for improving communication in committees, and, in doing so, proves how businesslike and practical general semantics can be. The book is based on findings he gathered for five years as he sat in on over 200 board and committee meetings.

In sixteen of the groups he studied, he saw examples of men and women talking together spontaneously, co-operatively, and constructively. Trying to isolate some of the factors that contribute to these meetings, he lists: "(1) The leader did not try to tell the others what to do or how to think; he was thinking along with them. (2) No one presumed to know it all; one might be eager and vigorous in his manner of talking, but he was amenable and attentive when others spoke. (3) The people thought of

the accomplishments of the group rather than of their individual exploits."

(Lee suggests that to introduce these factors into meetings, a leader could try the non-monitoring role and take time out to let the group discuss the values of the non-allness attitude and the non-solo sort of performance.)

Regarding another executive task—the job of giving orders and instructions—Lee made this observation to DUN'S REVIEW AND MODERN INDUSTRY: Every manager should ask himself, "When I give instructions or commands, do I speak in such a way that those to whom I speak feel free to come back and say 'Is this what you meant?'"

In carrying out this management task, to use words well is not enough. They need to be accompanied by a manner of personal availability and willingness to work out a common ground of understanding. Encouragement for this, however, is usually lacking in the executive's busy mood and very ways of operation.

To illustrate his observation, Lee mentioned a small incident he recently witnessed. A vice-president gave some precisely worded instructions to one of his department heads. The man listened attentively, nodded, and left the office. Lee caught up with him soon afterwards, and asked, "Do you know clearly what the boss wants?" Hesitating a moment, the man replied, "No, to tell you the truth, I don't."

"Well then," said Lee, "why not go back and clear things up?" "Do you think I'm crazy?" was the retort.

As is happening everywhere, those instructions will be carried out as the man understood them, but not necessarily as his boss thinks he understands them, and the job will be slightly bungled. Everyone will wonder why things did not click as expected.

### A trap to avoid

The examples used here to illustrate how G.S. works are taken on purpose from little, everyday office incidents of men trying to solve a problem, to lead a meeting, and to issue instructions. Perhaps the examples are too uncomplicated, making G.S. sound like nothing more or less than every-day common sense and logic dressed up a bit. Those who attempt to follow its methods of thinking, behaving, and communicating indicate, however, that to turn these methods into a set of well-ingrained personal habits is a job that presents a real intellectual challenge and weeks and months of practise.

G.S. is a system teaching not only what to do, but how to do it. It says, for instance, that one should, and then tells you *how* to, delay emotional reactions and instinctive responses to situations demanding objectivity; listen to people until their viewpoints are clearly identified before passing judgment; face facts and ideas that do not mesh with your own thinking; decide what is happening as you communicate with a person.

To explain the thinking behind this know-how would take a book. (To mention a few

good ones: *People in Quandaries*, by Wendell Johnson; *Roads to Agreement*, by Stuart Chase; Lee's *How to Talk With People*. And on a more philosophical level: Alfred Korzybski's *Science and Sanity*; S. I. Hayakawa's *Language in Thought and Action*. The International Society for General Semantics, Chicago, also issues a periodical, *ETC.: A Review of General Semantics*, in which occasional articles appear of value to the business man. For example: *Insurance Loss Adjusting*, by Ingolf H. E. Otto; *General Semantics and Credit Evaluation*, by Helen Sommers; *Wanted: Mature Managers*, by Benjamin M. Selekman.)

As one way to illustrate here the thinking behind G.S. know-how, let's investigate how you decide, according to general semantics, what happens as you communicate with a person.

G.S. teaches that since words and symbols are denotative and connotative, no single word or event is interpreted the same way by two people. No two people, events, or ideas are identical either. You should therefore interpret what happens to the other fellow as he reacts within four areas: his thinking, feeling, self-moving, and electro-chemical activities (see drawing and caption on page 43) to generalized meanings of words, events, and symbols.

### Why its necessary

Learning to become aware of these semantic reactions will help you to understand a communication situation otherwise impossible to "feel." Because, although people can share understanding together up to a point, they can never have mutual semantic reactions for these swell out of each individual's interpretation of words and events in the light of his personal experience, anticipation, and environment.

To keep tabs on what happens as you communicate, you also practise regulating *your own* semantic reactions. It should become a habit, for instance, to watch out lest you attach false meaning to facts because emotionally charged or connotative words have stimulated within you a prejudicial attitude.

Maybe after reading this report, a lot of business men will recognize in general semantics some things they have been preaching to their subordinates for a long time, and therefore think they know it. "Once a point is 'understood' and accepted as 'reasonable,'" suggests industrial psychologist Dr. J. S. A. Bois, "we are apt to imagine that the job of self reeducation is done." Such "bubbles" are pricked quite hard though as you wade your way through "levels of abstraction," "linear thinking," "value terms," B- and C-controlled behavior, according to most of the junior and senior executives who undergo the rigors of G.S. training.

To show how general semantics is being used in executive development, some case examples, from Canadian companies studying executive methods, are given on the opposite page.





# BENEFITS OF G.S.

## in training programs



J. S. A. Bois, industrial psychologist (forefront, right), relaxes in Canada's Indian Summer sun with the author, his associate, and hosts (left to right) at Ste. Agathe, P. Que. Below is an account of how this authority on general semantics has incorporated its methodology into a work-shop program for management. In a recent report to the American Psychological Association, Dr. Bois mentions some of the results: better emotional control at work and outside; saving of time in administrative and committee discussions; earlier discovery of problems; fewer and shorter memos.

LOT of things may happen simultaneously in a management-training program where general semantics is used—or so it seems to those in the training group.

Recently, a group of men at the middle-management level of Canadian Marconi Company, met for instruction at the Laurentide Inn, in the quietness of the countryside several hours away

from Montreal. They were attending a work-shop given by the Montreal firm of Bois, McCay & Associates, Ltd.

They analyzed key notions and techniques of top management with the aid of the case-study method and practical group techniques such as role playing that are usually associated with such programs. They were putting themselves

into the shoes of top brass. More than this happened, though. On the morning, for instance, that they discussed the troublesome situation which management at Case History Company B had on its hands after installing a central stenographic service, these Marconi men were also making good stabs at personal efficiency in:

*Continued on page 178*



Middle management—one of the groups sent from Canadian Marconi Company—is deep in the discussion of a case study. Note how the moderator has plotted their thinking on the board much as an architect diagrams his ideas.



Top management, men from Henry Morgan & Company, Ltd., including Vice-President and General Manager J. Bartlett Morgan, apply G.S. thinking to their work during a session in the mountains at Chalet Cochand.

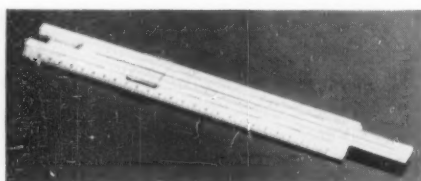
# BUDGET:

*from Red Tape*

HERBERT E. MULLER

*Budget Director, Congoleum-Nairn, Inc.*

*The selling of the budget principle is a feat requiring tact, co-operation, understanding, and, ultimately, proof by test. Figuring can be done by slide rule, comptometer, and other instruments, but how to make it work must be first in mind.*



DEVANEY PHOTOGRAPH

SOME YEARS AGO, David Starr Jordan, a noted educator, said, "The world steps aside and lets him pass who knows where he is going." Certainly, a management's stewardship over its employing company's properties and earning power requires that management to know where it is going.

To-day's keener competition, high-priced labor, and rising costs of plant replacement are gnawing away at what may have, in previous, easier-going years, been considered adequate earnings. Facing this problem, many managements have been advised to turn (and, in some cases, return) to budgeting.

But all too often, if this advice is taken, it is quite likely (perhaps because of a previous sad experience with a budget, or merely because of hearsay) to be much in the same manner as a sick man might take to bad-tasting medicine. More frequently than not, the orderly processes of planning and follow-up, the so often misunderstood fundamentals of a budget, must be "sold" to the very management which will benefit from the technique.

When a budget system is to be "sold" to a

management which has only cautiously opened the door, there is little to be gained from scholarly written arguments or carefully prepared accounting procedures. Some of the more apprehensive members of management have probably had an experience during their careers when the budget system was permitted to become a product of the accounting or budget department. That is, a paper work barrage ensnarled in red tape and system. The job of selling, consequently, is largely a job of doing, for the answers to management's incredulity will best be found in its own later experience with the budget as it is intended to operate.

If the budget comes as something new there is a good chance that it will be met with resistance from the "old guard." To gain the co-operation of this group, it should be proved very early that the budget, contrary to what most of the "old guard" might think, is not being introduced as a dastardly scheme to check up on expense accounts, or as a trap laid to bare a person's weaknesses or failings.

It is not unusual to find some who are ready to go along and obligingly "fill out the forms." The avoidance of such lip-service requires an immediate squelching of the idea that the budget is something to be gotten out of the way so that people can get on with their jobs. The job of selling the budget principle to this segment of the management team is a matter of proving that the budget is, in plain fact, each person's job expressed as a plan in terms of a common denominator—the dollar.

To sell them the budget system is to demonstrate that it is merely a systematic, formal, co-

ordinated approach to the collective job of which each member of management is already performing a part. To say it more simply, getting away from the backs of envelopes.

Although seemingly self-evident it is quite often necessary to point out to the doubting type of executive that he is already planning objectives in the performance of his job. The business of management is a dynamic affair. It deals not with the problems of yesterday, or even of to-day. It deals in events that will happen to-morrow, next month, next year.

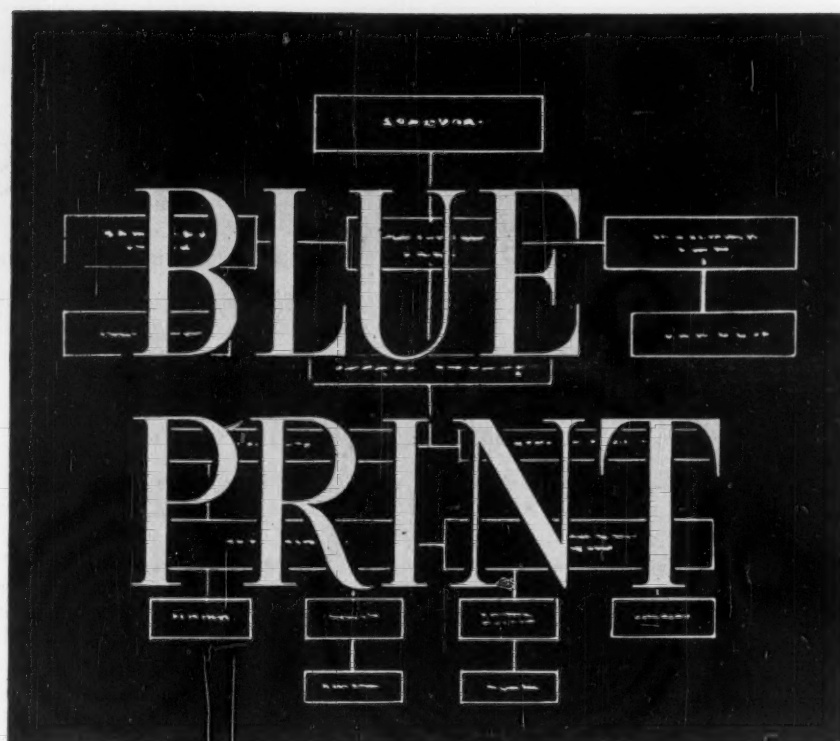
Consequently, it remains for the budget to get, in every instance, the plans of the company's executives expressed in specific, concrete terms so that the planner, and those to whom he is responsible, can appraise the program, compare planned costs of that program with planned accomplishments, measure performance, and take corrective action where necessary.

In order to achieve the "sales" objectives outlined above, it is usually well advised to have the company's budget "salesman" (usually a specially assigned budget executive, or the comptroller if no specialized staff member is appointed for the purpose) spend the early days of the installation interviewing the company's top divisional executives, studying the company's organization, its operating records, and accounting statements.

Experience indicates that the most important objective at the outset of a budget installation is a clear understanding of the purpose that the system is to serve. In many instances where budget systems are not well received, or are not being utilized to their fullest extent, the trouble is traceable to a fuzzy understanding on the part of all concerned as to just what that budget sys-



to



tem is intended to do for them in the performance of their jobs.

The definition of purpose can best be gotten by having the budget executive engage in preliminary interviews with top divisional executives before any attempt is made to study organization and records. It should soon become evident from these interviews just what voids in the management scheme need to be filled by the budget technique. The budget executive would be well counselled to keep in mind during these opening discussions that his company has turned to budgeting for a purpose even though there may not always be a clear understanding in management's mind as to just what the exact need may be.

A clear definition of purpose requires that the budget be no mere estimate or projection. The most benefit will be derived if budgets are set up as realizable goals of accomplishment—plans of action, plans formulated from the needs identified in the meetings with the officers of the company, its division heads, and line executives. Such interviews usually make it evident that to honestly serve this end the budget must be based, for the most part, on definitely outlined programs and not be permitted to become a matter of accountants applying ready-made ratios, usually averages derived from historical experience.

The preinstallation appraisal of the company's operating records and accounting statements is very important. While the easiest solution for the budget executive may be to change the classification of accounts, rearrange reports, and establish new accounting techniques, it should be remembered that nothing will sink a budget in a small or moderately-sized concern (or in

any company, for that matter) so quickly, or so surely, as to have the system bring with it a great deal of added work and reports.

Consequently, a sincere examination of the possibility of adapting any of the currently prepared forms or reports is sure to win acceptance for the budget for obvious economical, as well as psychological, reasons.

After the preliminary stages touched on above, the budget executive should be asked to present, in writing, his program of how the budget system is to be introduced. The report should be directed to the president. It is most essential that the company's top executive spend time personally reviewing the program with the budget executive.

The president's co-operation is usually more confidently gained if a tentative time-table is made a part of the program. This time-table, arranged as a result of the interviews and the review of existing controls, should indicate the order in which each of the company's activities will be co-ordinated under budgetary control.

The schedule should include not only those activities or programs which will give rise directly to income or expense, but also those indirect, but related, activities, policy decisions, or setting of objectives which must be cleared away before specific courses of action can be planned. The time-table, incidentally, provides the budget executive with the opportunity to check his opinion as to the relative importance of each of the areas with the president's. A definite program also precludes the possibility of having overlooked some important detail essential to a smooth dovetailing of closely related budgets.

The advantages to be gained from an ad-

vanced programming of the installation cannot be emphasized too strongly. A definite plan, with reasons for the scheme and order of it, makes a very convincing selling point and soon wins the support of the very top official of the company, the one person without whose support, incidentally, the successful installation of a budget system is not possible.

It should be quite clear from what has been said thus far that the person chosen to energize the budget cannot be merely a good financial man or accountant. In addition to these qualifications he must be a good administrator with a well-rounded business background. Much of the success for a proper introduction of the budget is dependent upon the man chosen to make the installation.

### Starting Point

Since a fully co-ordinated system of budgeting should close the gap between the selling program and the other activities of the company, the installation is best started by having the marketing department develop not just a sales forecast, but a complete selling plan. The need for more than unilateral planning should be constantly and consistently emphasized to top marketing officials.

The fact that a knowledge of expected revenues, probable level of activities, estimated costs and expenses growing out of the selling program, will permit a projection of the company's need for productive facilities, man. power, and working capital, and, consequently, will lead to benefits reverting to the advantage of the marketing department, is a sales point not to be overlooked. Constant references should be made to the interdependence which makes it essential that the selling plan, as a part of the company's master plan, be a fully co-ordinated, completely reasoned, and factually supported program.

While the budget is never offered in any of these conferences as a panacea, very definite efforts should be made to demonstrate, as the work progresses, how orderly planning is forcing each responsible member of the company to project, on a factual basis, specifically realizable targets as well as the paths to be followed for their attainment.

The very concreteness of the budget soon proves that the selling program has to be in harmony with the opinion, judgment, and plans of sales managers and representatives, distributors, and others responsible for promoting and publicizing the company's products and policies. In short, the entire marketing organization, with its background and experience, has to be devoted to the task of planning and achieving the sales plan. A more effective co-ordination of selling and promotion plans will illustrate the worth of good budgeting.

The fundamental precepts of co-ordination, co-operation, and follow-up, which every successful and acute executive is presumed to follow religiously, are not practised as generally as one

*Continued on page 69*

# Are these your BIG PROBLEMS?

ANNESTA R. GARDNER  
Industrial Editor

*Sales and costs are the twin problems reported by executives in a wide range of industries. Here's why, where, and what can be done about them.*

ANY PRODUCTION man who is not now acutely sales-conscious had better get that way—and fast.

That's a prime lesson from a limited survey just completed by DUN'S REVIEW AND MODERN INDUSTRY. Executives in a variety of manufacturing industries (machinery, textiles, plastics, home appliances, and so on) were asked just one question: "What, in your opinion, will be your company's major operating problem (or problems) in the year ahead—and why?"

No attempt was made to suggest answers. However, the letter of transmittal did mention, as examples: "Are materials costs getting out of hand? Is indirect labor a major problem? Does materials handling need particular attention? Will product engineering receive new emphasis this year?"

If anything, these questions tended to direct attention toward the production area. Yet, time after time, the answer was "sales."

Incidentally, while names for the survey were selected at random, and companies ranging in size from less than ten to over 20,000 employees were covered, no attempt was made to achieve a statistically random sample or to cover "all" industry. The uniformity of results does, however, provide a strong clue to industry's thinking.

As the chart at right shows, the need for a greater sales effort ranks first in the minds of chief executives (board chairmen, company presidents, and executive vice-presidents), and probably would have ranked first over-all if the letter had not been slanted toward the production area.

Almost as striking as the frequent mentions of the need for sales—and bearing out the importance of this problem—was the almost complete absence of any mention of increasing production. Less than a handful of the companies replying expressed any interest in, or desire for, increased production.

Equally noteworthy for their omission were union problems and labor troubles. These were rarely mentioned, though many of the executives replying to the questionnaire complained of high wage rates and difficulties in securing skilled help. Many are worrying, too, about how to increase labor productivity. They're planning

## Executives tell their major problems

Here are the problems most frequently mentioned by executives replying to the question: "What will be your major operating problem(s) in the coming year?" Particularly noteworthy is the showing of "sales" since, though no sugges-

tions were made on the survey sheet itself, the accompanying letter tended to slant thinking toward production problems. Note: All answers were write-ins, so tabulation is somewhat arbitrary, but major areas of emphasis were clear.

	by this percentage of these executives			
	all executives	chief executives	production executives	sales & financial executives
	%	%	%	%
INCREASE SALES	51	59	28	56
REDUCE PRODUCTION COSTS	42	38	48	43
REDUCE DIRECT LABOR COSTS	32	28	46	24
IMPROVE PRODUCT LINE	31	23	47	25
CONTROL INDIRECT LABOR COSTS	14	11	24	16
TIGHTEN PLANNING, CONTROLS	14	11	19	19
COMBAT HIGH MATERIALS COSTS	13	12	19	4
REDUCE OVERHEAD COSTS	12	13	9	15
IMPROVE MATERIALS HANDLING	8	10	21	5

this was listed as a major problem



## Cost reduction check √ list

If you're in the position of the vast majority of those who outlined their major operating problems for the year ahead, cost reduction looms large in your 1954 plans. Here's a check list to help pinpoint areas that need attention. Are you taking these steps to reduce:

### OVER-ALL PRODUCTION COSTS

- ☐ Reexamining production flow and materials handling to find opportunities to straighten travel routes, reduce the number of time parts handled, and hold product damage to a minimum?
- ☐ Rechecking engineering specification to see where wider tolerances and fewer finishing operations might be permissible — reducing production costs without sacrificing important product qualities?
- ☐ Charting specific causes as well as amounts of overtime, and taking steps to cure them?
- ☐ Installing recorders on key machines to find out exactly how often —and how long—they are out of operation so that a greater effort can be made to keep them working productively?
- ☐ Keeping track of scrap and reject percentages in each department—making sure the trend is down, and not up?
- ☐ Watching out for peak electrical loads and other rate-boosting features of plant services?
- ☐ Studying the work of supervisors to make sure they're not wasting time on lower-grade chores? (One company which did this found it could achieve far better supervision with fewer supervisors by eliminating many "non-management" tasks from their jobs.)

### DIRECT LABOR COSTS

- ☐ Using skilled workers at top skill all the time? (You're not, if operators must waste time waiting for materials to be delivered, or stand around the tool crib waiting for needed tools and supplies.)
- ☐ Making every effort to reduce hard physical labor by installing materials-handling equipment on machines? (Skilled workers should

not have to lift heavy parts and big, cumbersome dies.)

- ☐ Holding waste motion to a minimum by proper workplace arrangement, centralization of machine controls, and the like?
- ☐ Installing a wage-incentive system, based on accurate time standards, to boost worker productivity? (If you already have such an incentive system, are you keeping time standards up-to-date, making changes when methods are altered? If not, you're likely to be paying a lot too much for too little.)
- ☐ Checking up on working conditions to make sure lighting and ventilation are adequate, and plant housekeeping is efficient? (Production can fall off rapidly if dirty lighting fixtures make it hard for workers to see what they're doing.)

### INDIRECT LABOR COSTS

- ☐ Setting up shortest-distance travel routes through the plant to reduce travel time of materials handlers?
- ☐ Installing two-way radio on fork trucks and other mobile equipment to eliminate too-frequent returns to the central dispatching point?
- ☐ Using statistical sampling techniques to reduce the amount of inspection needed?
- ☐ Reexamining inspection stations to see whether new gaging and test equipment, better workplace arrangement, and better lighting might speed work and reduce costs?
- ☐ Putting maintenance work on a scheduled, planned-in-advance basis as far as possible? (That not only saves the time of maintenance men, but also can do much to avoid equipment breakdowns that waste production time.)
- ☐ Keeping an exact record of building and equipment repair costs so replacements can be made before

equipment costs more to maintain than it is worth?

- ☐ Putting janitor work on a planned-in-advance basis, and giving janitors modern equipment to help speed their work? (With present-day wages for employees like these, adequate equipment is really a vital necessity.)
- ☐ Providing wage incentives for indirect workers? (Inspectors, materials handlers, electricians, pipefitters, and janitors are among the indirect workers now successfully placed on individual work-standard incentives by a number of companies.)

### MATERIALS COSTS

- ☐ Bending every effort to standardize raw materials, parts, and packaging materials to reduce purchase costs, inventory, and handling?
- ☐ Making a major attempt to reduce product damage and contamination —watching materials-handling operations, providing covers for drums and tanks of chemicals, racks for delicate metal parts?
- ☐ Collecting and segregating scrap, revising materials whenever possible, and making sure unusable materials are sold for the highest possible price?
- ☐ Encouraging your purchasing department to shop for bargains, buy in most-economical quantities, and keep a sharp eye on shipping costs?
- ☐ Holding rejects to a minimum by taking advantage of quality-control procedures and similar techniques? (Control charts at machines, processing reactors, furnaces, and the like, spot off-limit trends and make it possible to adjust equipment before materials are actually spoiled.)
- ☐ Making a sincere effort to reduce indirect materials costs? (It's not necessary to count paper clips, but a certain amount of inventory-watching is necessary.)

## How to get and keep customers

Better inspection, new machines for production control and accounting, and better stock handling are among things U. S. Rubber's Naugatuck Footwear plant is doing to serve its customers better. Most important, it's enlisting employee co-operation. Pictures are from their magazine.

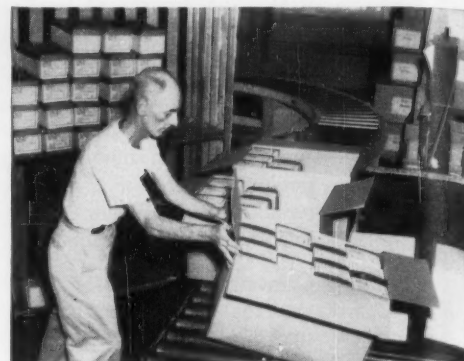
### GOOD QUALITY...



### IN THE RIGHT QUANTITY...



### DELIVERED ON TIME...



greater mechanization of operations, more attention to employee training, and installation of wage-incentive systems to meet this problem.

High wage rates, plus high materials and freight costs, make it easy to understand the intense interest in cost reduction shown in the replies. Furthermore, cost reduction has a very direct tie to sales in times like these. Customers know that the buyer's market has arrived in a great many lines, and they are no longer willing passively to accept one price increase after another.

Then, too, selling in a buyer's market costs more. Advertising appropriations must be increased. Often, more money must be spent on sales training and sales promotion. And, if that extra money is not to come out of profits, it must be wrung out of production costs.

A staff assistant in an office equipment firm summed the situation up neatly when he said: "Our potential market is tremendous. We haven't even begun to tap it. But we're meeting increasing price resistance. We wouldn't dare increase the price of our product. Yet, opening new markets takes money—for advertising, sales training, travel. That means we've got to hold our production costs down—pull them down if possible."

What can management do to reduce production costs? There are no new and startling solutions. But almost any company can find opportunities to save money by reexamining production operations to make sure that men, materials, and machines are used to highest efficiency. The check chart on page 49 may help you find these opportunities in your plant, and the chart here

### Is your plant tuned to selling?

Are production and sales departments working together as they should? Check to make sure.

- ☐ Has materials handling been reexamined recently to find out whether it would be possible to serve customers better, cut your own costs, by shipping products on pallets, converting from bags to fluidized shipments, and so on?
- ☐ If you use statistical sampling methods in inspection, have you considered sending a copy of the inspection chart along with each shipment to guide customers' use of your products, and reduce their inspection costs?
- ☐ When complaints and returned products involve production or inspection operations, do you make sure that the responsible supervisors are informed so they can eliminate the cause, be on guard against future mistakes?
- ☐ Is the sales department fully aware of the production problems created by unwarranted promises on delivery, special models, and so on—problems that eventually make it necessary to increase prices, or disappoint the very customer whose favor was being courted?
- ☐ Are you taking every possible measure to reduce costs (see chart, page 49)?
- ☐ Have you considered sending production supervisors on occasional visits to customers so they can see how your products are actually used—and which quality features are most important?

is designed for checking inter-departmental efforts to improve service and increase sales.

While sales and costs are far-and-away the major executive problems these days, a third, which ties in with both of the other two, is scheduled for plenty of attention. This is *product improvement*: Redesign of established products so production and materials costs can be reduced and sales appeal increased; and addition of new products to smooth out production and sales valleys.

For instance, the vice-president of a company making road-cleaning accessories hopes to "reduce manufacturing costs through redesign, use of new materials, and partial elimination of more costly components."

The president of a company making materials-handling equipment is emphasizing product engineering "with a view to reducing costs, and, at the same time, producing a superior product."

And the president of a company producing ceramic goods says: "Our principal operating problem in the coming year will be a matter of developing sales, which we plan to do by offering the consuming public new shapes and colors."

Reflecting problems in both sales and production costs, the break-even point (amount of revenue necessary to meet the cost of doing business) is worrying a number of executives. This point was not specifically mentioned often enough for charting, but there is no doubt it is worrying many executives. Throughout industry, the break-even point has been rising steadily over the past several years—making a high sales vol-

*Continued on page 107*





## Observations on France

EDWIN B. GEORGE

Director of Economics Department  
DUN & BRADSTREET, INC.

*At mid-century, France finds herself in the unenviable position of a major power in danger of being overshadowed. Plagued by splinter parties, economic woes, and colonial unrest, she must take harsh cures in order to recover her once unassailable position as a strong nation.*



CHAMPS-ÉLYSÉES FROM ARC DE TRIOMPHE—GENDREAU PHOTO

FRANCE is often called the sick man of Europe, but the phrase is too limited in suggesting merely a private misfortune requiring our sympathy. It skips causes and effects whereas the first may partake of economic delinquency and the second may mean needless suffering for people everywhere. In fact, it is easy to slip into the extravagance of charging France with responsibility for many of the world's present troubles.

If France were strong as France could be strong, the smaller nations of Europe could rally around her as they have sometimes done in the

past in the face of external threats. The resulting fortress might give pause even to slaving bears and, while hardly permitting America to relax behind her oceans, might permit her to function more nearly as a sustaining and balancing third force.

Deep-seated disorders in the French economy give surface results of chronic instability. When the symptoms show, they are too fully explained and dealt with as consequences of two wars, the Indo-China conflict, the costs of rearmament, poor and inequitable tax collections, and adjustments to post-war inflation. It is true that these developments are disturbing, and could have upset much stronger economies. The real question is whether France was not heading for upset even without them, in which case, one may have to reconsider his ideas on the kind of remedies needed.

The following discussion will, therefore, deal

but lightly with the current economic situation in France in order to get at the job of justifying what has just been said. If true, the latter is by definition much more important, and current events largely a by-product without much character of their own.

*The Current Situation:* Along with other European countries, France has effected remarkable increases in industrial production since the war. By 1952 the over-all rate was 50 per cent above that of 1938. The composition of these gains has not been the same. Housing, under strict rent control, has hardly expanded at all. Most of the growth has been in basic industries such as electric power. The Rhone dam, together with supplementary construction, will upon completion probably provide more power than TVA.

Investment in manufacturing industries has been held back for lack of capital although many

companies and projects have been subsidized by the Government. In fact, it has been the determined effort of the Government to raise the productivity, industrial strength, and thus the standard of living of the French economy through heavy investments that has been responsible for a good deal of the post-war inflation. Other offenders in this respect have been the Indo-China



SYMBOL OF FRANCE AND FRENCH DESIRS—THE CAFE DE LA PAIX

war, the rearmament program, and liberal social security and welfare programs.

Contrary to general impressions, perhaps, France has done her full share in providing for the common defense. Her outlays in 1953 will probably take 12 per cent of her gross national product which, after allowance for the low standard of living into which she has to cut for any such purpose, compares very favorably with the 14 to 15 per cent ratio at home that we are now trying to reduce. The Indo-China effort in particular is a grievous burden, exceeding in cost by a considerable amount the value of our aid to France in all forms and, in addition, bleeding her officer corps white.

There has been a sharp post-Marshall push that now seems to have spent itself. Economic expansion ceased in 1952 and has been reversing itself slightly in 1953. Both domestic and foreign orders have been falling off—domestic because of a let-up in inventory accumulation following a tentative stabilization of prices last year; foreign because of high prices and British import restrictions. Sales of many consumer goods are down. Railroad receipts and electricity consumption are down, and there is a distinct slowdown in construction and the sales of capital goods.

Unemployment is still not high in comparison with that of some other European countries, but is at a post-war peak and is growing. The Paris cost-of-living index (only one available) hit its peak in the first quarter of 1952 and declined modestly thereafter. A 1953 high of 146 (1949 = 100) was reached in February after which the index fell off to a low of 141 in September. The peril point for wage shifts is 149.5 as a result of ex-Premier Pinay's promise last year that if the cost of living rose by 5 per cent and held or exceeded that level for two or three months, minimum wages would be raised by 5 per cent. The wage scales of many private industries move with the Government's minimum.

France's basic difficulties are clearly reflected in her balance-of-payment position with the European Payments Union. Even during 1952

she was running substantial and rising deficits with other Organization of European Economic Co-operation countries. With a strain on her hard currency reserves that she can ill afford, she has been compelled under EPU rules to make 100 per cent gold payments on new deficits for some time.

Both the state of and the prospects for her dollar accounts are a bit obscure. Reports vary as to the manner in which correspondents' accounts are handled by the Bank of France. Because of this and a few other uncertainties, it is possible for the computations of some analysts to show a small loss in gold and dollar reserves from the end of 1949 to late Summer of 1953 while those of others report a sizable gain over the same period. Matching 1949, however, would hardly be the dawn of a new day, as reserves even then were far below pre-war levels.

As to the future, one's first thoughts must be concerning the extent to which United States outlays over those years for economic aid (\$1,476 million); advances (\$154 million) and regular payments on off-shore procurement contracts;



SYMBOL OF WEALTH AND LEISURE—NICE, ON THE FRENCH RIVIERA

NATO infrastructure (substantial), and United States military costs in France and North Africa (substantial), will be recurring in the same volume. Considerable shrinkage over-all seems to be indicated, although payments on account of off-shore procurement should increase for a year or so. Achievements to date, whatever they are, have been made possible in part by fairly heavy restrictions on dollar imports, although real demand for dollar items, particularly chemicals, has also been dropping during the past year.

There are a few redeeming features. Agricultural production has risen since a 1951-1952 setback although it is still barely above pre-war levels. The resulting larger food supply should work against advances in food prices and, as food costs absorb 60 per cent of the French industrial worker's income, may check wage pressures and subsequent general inflation. In Europe wage rates are related rather generally to the cost of living.

The French trade position may not be quite so bad as the figures show because the fear of another devaluation has resulted in substantial advance payments on the part of French importers and a deferring of collections by exporters.

Premier Laniel has succeeded in securing some agreement among distributors of "wage goods" to lower prices and he has been trying to put through a finance program somewhat like that of one of his predecessors, M. Mayer, repaying balances to the Bank of France and limiting investment expansion. In these efforts he has enjoyed some success, but against him must be recorded the facts that (a) he may in the end have to make substantial concessions to Government workers, as an aftermath of the Summer strike, that would probably be extended to industry; (b) the Governor of the Bank of France, M. Baumgartner, has been persuaded by the Minister of Finance, M. Edgar Faure, possibly against the former's better judgment, to try to bolster up faltering business by lowering the discount rate and easing credit although the real trouble lies elsewhere (such as high costs, an archaic economic structure, and both public and private trade restraints) and the principal result may be more inflation; (c) wheat prices have been increased, possibly with an eye to later devaluation of the franc, although the Government frequently raises wheat prices in mid-Summer; and (d) M. Laniel's Government may soon fall anyway.

*Basic Analysis:* A tempting exaggeration is that France has everything. Her economy is more nearly self-sufficient than most, an advantage that was quite manifest in a recovery from the ravages of World War I that gave her financial leadership for a while. (Admittedly after a period of confusion and recurrent crises running to 1926.) With intensive development she could produce enough food for a good living and export as well. Her vines and wines require no superlatives, and her culture of fruit trees is also successful and extensive. Taken with the Saar, which is literally taken and in the guise of inter-



SYMBOL OF INDUSTRY—WORKMEN IN HOT-STEEL ROLLING MILL AT DENAIN

nationalization will probably be held, she has coal and iron, and independently disposes of considerable bodies of rock salt, bauxite, potash salts, mineral oil, and pyrites. Her textile industry has always been large and has a "name" in world markets. Metalworking now constitutes a large industry, while silk culture and the manufacture of sugar and alcohol remain as bulwarks, although sugar is heavily overdone requiring very large subsidized alcohol production.

Open to the sea, and thereby to the world, there is a healthful, sunny, and pleasant climate in three-fourths of France. Her age, colorful



history, and unrivalled romantic appeal ("joie de vivre," "toujours gai," "amour amour," a riot of perfumes, a gift for phrasemaking in statecraft, and so on) give her a big unearned increment in tourists' gold. How could she miss?

**Government Expenditures:** In real terms, Government expenditures more than quintupled from 1913 to 1953. This growth may not be startling in a world that is giving extensive powers to government everywhere, but resignation to the doctrine throws no light on what individual countries can afford and what they get for the money. With France these outlays now amount to perhaps half of her national income.

The first explanation is in the degree of socialization attained. Of the entire French labor force, 35 per cent is now working for the State including nationalized industries, the armed forces, and civilian administrations. As a second source of drain, all French Governments have had to finance the rehabilitation of war-damaged properties and the defense of Indo-China, and all have chosen in varying degrees to push the Monnet Plan for re-equipping industry and expanding national productive resources through Government investment. A third explanation lies in a complex of social services and subsidies widely regarded as higgledy-piggledy. Disregarding a relatively small sum applied to interest and amortization of the public debt, slightly more than half of the 1953 expenditures of central and local government is going for goods and services. Over a tenth of the total is being distributed among business concerns in the form of subsidies or loans, and individuals will receive unilateral payments amounting to over a fourth of all Government expenditures.

The half for which no goods or services were received by the Government is spread largely over such categories as individual benefits and

French officialdom as much as anyone else.

Military outlays, blamed by French left-wingers for most of France's troubles, account for only about 30 per cent of total expenditures which in comparison with both the size of the job and the efforts of other nations does not seem extravagant. And if the transfers of funds among private entities yielding no goods or services were eliminated merely for the purpose of setting up angle shots, even present revenues would be found considerably more than adequate to balance the budget. As it is, a very large deficit amounting to nearly a fifth of the expenditures is being incurred over-all and is covered largely by inflationary advances from the Bank of France.

**Taxes:** The usual criticism of French taxes is that they are not collected. There is considerable truth in the charge, although it will astonish many Americans to learn that the ratio of collections to total national output is much higher than that reached in any other country including the United States. The prospect at which really to shudder would be complete collection of all taxes imposed. Topics of greater interest are the structure of the tax system and the relation of taxes to expenditures.

The people as such are not required to carry



ADDING TO FRENCH INTERNAL WOES IS TROUBLE CENTERED IN ALGIERS

very much of the tax load. That honor goes to business in its manifold forms. About four-fifths of public income and two-thirds of public expenditures are paid by businesses. Business concerns pay nearly as much in taxes as they do in wages and salaries.

A rough calculation<sup>1</sup> suggests the following distribution of gross income after cost of goods and business services: Wages and salaries, 30 per cent; payments to Government, 29.3 per cent; withdrawals of the 10 million owners and family helpers, 23.6 per cent; gross savings of the foregoing, 14.2 per cent; landlords and corporation stockholders get the trifling remainder. Another source<sup>2</sup> advises that total taxes, federal and local, absorb about 35 per cent of the gross national product as compared with 27 per cent in the United States; the tax cost to employers for social security and welfare programs averages more than 40 per cent of payroll; and for the worker

with a large family, the family benefits are equal to his wages.

Figures such as those cannot be compared casually with those of other countries because the economic structures are different. With all of our own talk about the sanctity of small business, for example, we can hardly know what the concept means until we look at France. France



THE FRENCH WAR AGAINST COMMUNISM TAKES PLACE IN INDO-CHINA

is really small business. Nearly a quarter of the French at work run some kind of business and an additional fifth is composed of members of their families.

Out of over a million commercial establishments, 87 per cent employ no more than one or two workers—the vast majority none at all. Out of nearly a million industrial establishments, 87 per cent again employed no more than one to five helpers—about half requiring none at all.<sup>1</sup> In addition there are some three million farms.

Because of the prevalence of small business, wage and salary earners comprise only about 57 per cent of the population at work<sup>1</sup> and, because of the layers of social benefits they receive, nearly all of the so-called "transfer payments" aggregating 30 per cent of the "wage and salary" outlay goes to them.

One result of all this is to make tax collection unusually difficult. One hears so many stories that they give the probably false impression of orderly echelons of evasion. The farmers, small businesses, and professional people are supposed to pay relatively the least. When the farmers were assessed a property tax as a means of blocking their escape, their political influence was apparently sufficient to keep the evaluations ineffectively low. Larger corporations are more likely to be caught because their records are more difficult to scramble without detection.

For a while there was a mitigating factor in the case of the farmer and his taxes. During the periods of steady inflation the Government tried to treat farmers' allergy to taxes by holding down support prices. Figured at official exchange rates, the latter remained above world price levels even so. But they lost their inflationary edge in the sense that from 1947 until recently non-agricultural prices rose more rapidly than the Government's agricultural buying prices. If this is an odd way to collect taxes, it is also rated as courageous by most and effective by many. But the

GENDREAU PHOTOGRAPHS

Continued on page 92

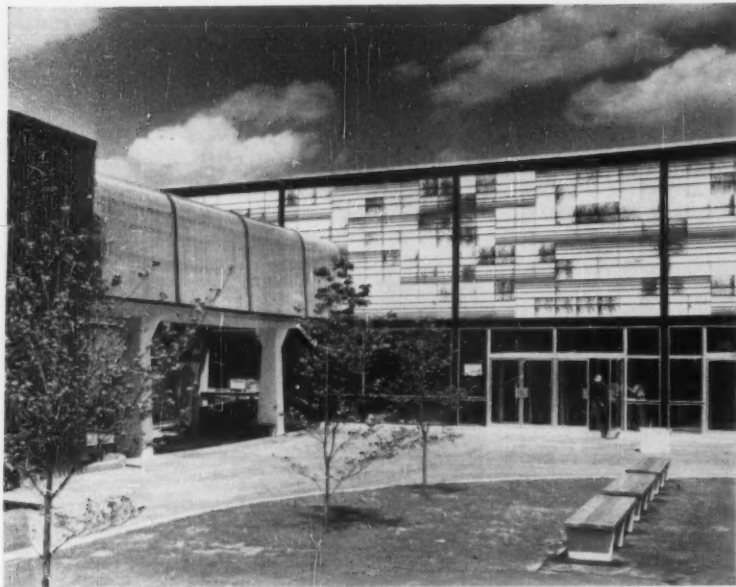


RURAL LIFE IN FRANCE—STREET SCENE IN A TOWN NEAR GAMBRAI

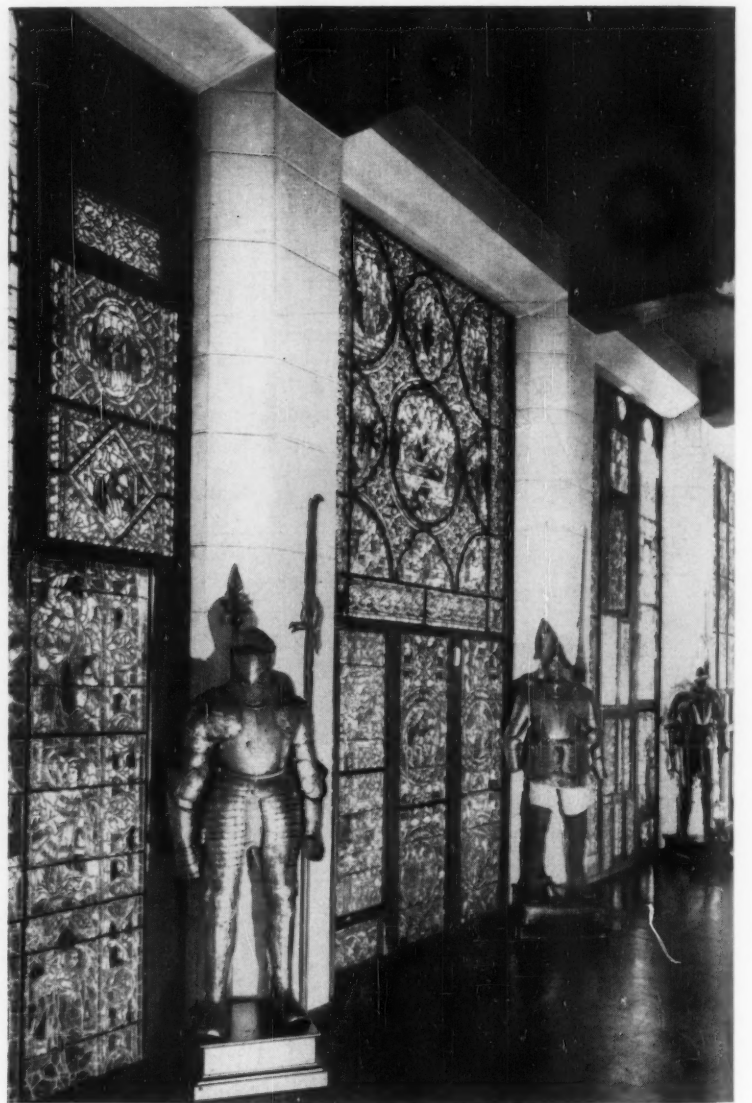
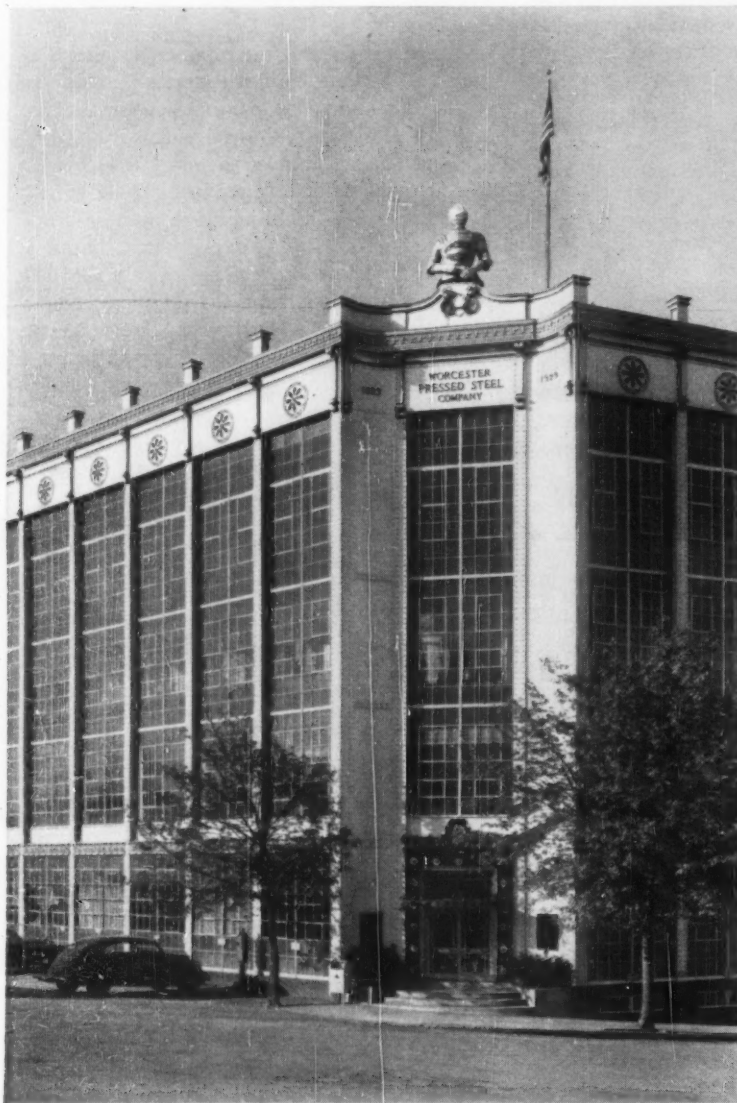
assistance in the name of "social solidarity," aid to war veterans and compensations for war damages, loans to (and losses of) State-owned enterprises, and grants to both public and private enterprise. All countries now make substantial transfer payments to individuals for good reasons and bad, and respect is required for the sincere efforts made by various French Governments since the war to expand French industry at points regarded as strategic. But it is hardly unfair to say that the proportions between tangibles and intangibles above set up a presumption of managerial abdication that worries

<sup>1</sup>Board on presentation of data by Bertrand de Juvenal in the Manchester Guardian, July 7, 1953.

<sup>2</sup>"The Economic Situation in Western Europe," a Report by Marion B. Folsom to the Board of Trustees, Committee for Economic Development, November 1952.

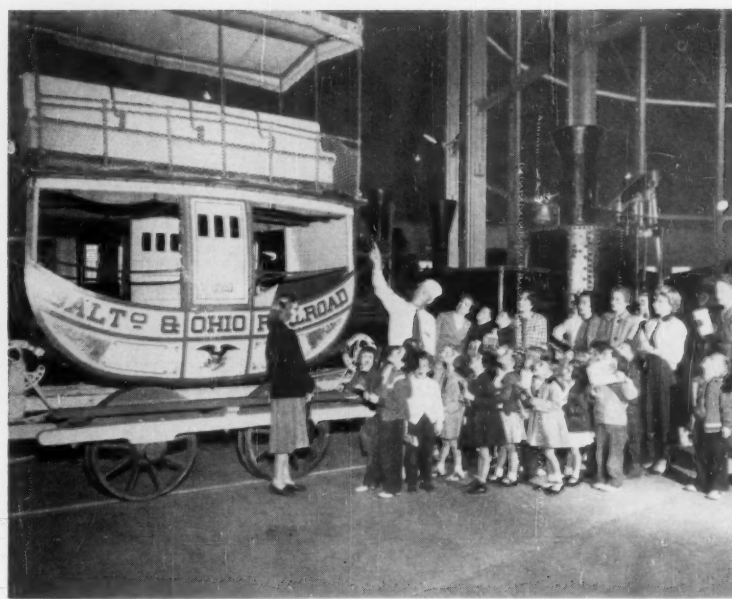


In New York State a striking example of the structural use of glass . . . introduces a half-million visitors yearly to the Corning Glass Center.



In Massachusetts the first U.S. building made of steel and glass is . . . the shell for Worcester Pressed Steel's three million dollar armor exhibit.





In Maryland, an old roundhouse holds the B & O's railroad museum . . . as more and more companies are discovering advantages in knowing

## How to Make a Company Museum Pay off

*The first step is to recognize that a fertile field for  
an expanded public relations program is lying fallow.*

JAMES K. BLAKE  
*Marketing Editor*

A COMPANY museum can be more than a storehouse for industrial relics. It can be a gold mine for the organization that realizes its potential—and develops it.

Here are some figures indicating, in part, what that potential can be. At the Corning Glass Center last Fall officials clocked the millionth visitor in only two years of operation. In Massachusetts, the Worcester Pressed Steel Company shows over 16,000 visitors each year through its collection of armor dating back to 800 B.C. The newly opened Baltimore & Ohio Railroad museum attracted over 1,000 guests the first day, then settled down to an average of 1,000 each week. On a "good" day over 1,500 people pass through the Thompson Products automobile exhibit.

An important sales influence? A significant prestige builder? The answer is obvious but the potential is far from being exhausted after you've counted noses. The possibilities inherent in a well planned museum radiate in all directions. Institutional advertising campaigns have

been planned around them. Community centers have been built in them, around them, and under them. They have become the starting point for plant tours. They have been used as aids in attracting workers and executive trainees. They have developed into important libraries for research. They have become meeting places for national professional groups. The company, via the museum, has been promoted through envelope stuffers mailed with dividend checks and invoices and through museum pieces lent to TV programs, centennials and other celebrations. Consumer research is still another facet many companies have explored.

Few company museums have really been gone over by management with an eye toward utilizing them to best advantage. The typical company museum is little more than a collection of antiques, kept because no one has the heart to get rid of the junk old R.I. began saving in the early days of the company. The way management visualizes its function is illustrated by the fact that museum contents are often carried on

the books as inventory. Some collections were gathered together specifically for a big event—a company birthday perhaps—and are moldering in some dank cloister waiting for the next one.

One of the most striking examples of museum management in the country is the Corning Glass Center. In its little more than two years of operation it has received nation-wide publicity and it is gradually emerging as a dynamic force in community relations.

Behind the Center is a story of long planning with definite objectives clearly laid out. The philosophy inherent in the Corning operation is this: To present the history of the industry in a dramatic manner while realizing, in as many ways as possible, the company's responsibility to the town. As a result, Corning wound up with the only museum in the world with nine bowling alleys in the basement and billiard and ping pong tables adjoining a priceless collection of glass.

In planning its facilities for community use, management attempted to avoid any suggestion

## How to MERCHANDISE A MUSEUM

*Only a few of many promotion ideas are shown here. Add to the list brochures, institutional advertising, give-aways, magazine publicity.*



Farmed-out exhibits dress up regional offices, draw attention to the museum. Old engine in Chicago office is part of Home Insurance Co.'s N.Y. show.



Consumer research is the aim of Corning Glass' survey station, part of its museum tour. Company and customers' products are tested here on visitors.



Encourage community participation. Chairman Higgins shows Worchester Pressed Steel's armor exhibit to local cub pack—to-morrow's labor supply.

of paternalism. As the Center director, James Brown, saw it, any suggestion of *noblesse oblige* on the part of the company eventually produces resentment and leads to intellectual lethargy on the part of the community. As Brown evaluates it, a combined museum and community center functions best when it is provocative. "We don't want," he says, "people to think, 'That wonderful company, the things they do for us.'"

Nonetheless, a certain amount of leadership is required. Corning planned two auditoriums as part of the Center, for example. These are available for any type of community function except those sponsored by political organizations. The company chips in with a professional Summer theater group (which is beginning to pay for itself), art shows, and films on winter Sunday afternoons. Corning, however, is careful not to impose unwanted culture on the community. The best way to approach it, they think, is by

slowly and informally sounding out people in casual conversations. Even then, management often finds that what people say they want doesn't always turn out to be the activities they will enthusiastically support. Consequently, when the Corning Center takes the initiative it does so tentatively and on a small scale. When the activity catches on, the scale is enlarged. Result is that even when the company suggests it, the community feels responsible for its success.

Similar views are expressed by Worchester Pressed Steel's Board Chairman J. W. Higgins. He wants no aura of "commercialism" around the firm's museum. Management uses every device available to promote its collection of armor, but the major build-up is for the industry and its craftsmen, not the company.

The plain fact of the matter, however, is that the company benefits to the same degree as the

museum is promoted. When, at Worchester Pressed Steel a preview of a music festival is given in the museum's castlelike halls or when, at the Baltimore & Ohio museum a lunch for a large business group is held on the enormous turntable in the roundhouse, the subtlest and most effective type of impact is achieved.

Though most companies choose to justify their museums on other and "higher" grounds, without question a museum is one of the lowest pressure forms of company promotion available. No one is imposing anything on anybody. But the company's name goes before a greater public with enhanced prestige.

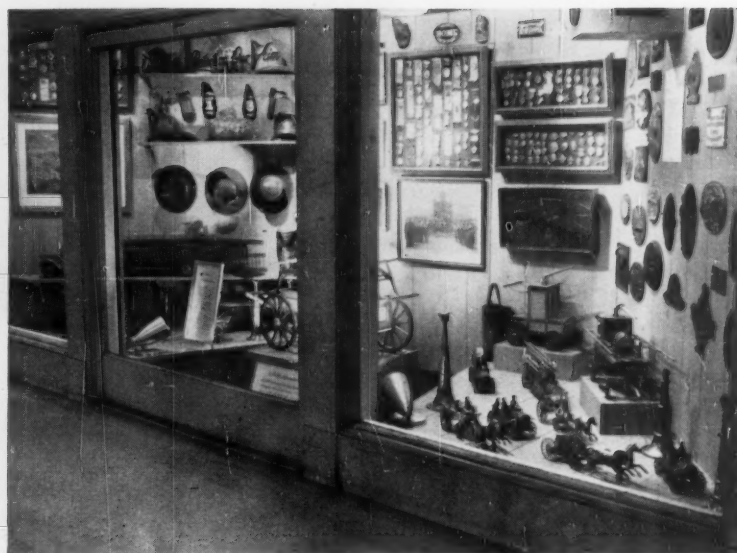
There are a number of ways to multiply and retain the impact upon casual visitors. At Corning Glass, for example, post-cards with full color reproductions of rare glass are a part of the "package." Worchester Pressed Steel offers

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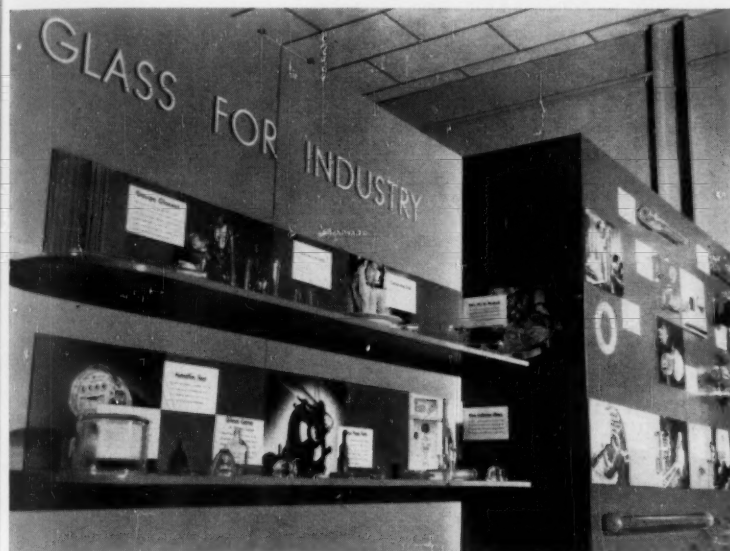




Don't pass up immediate sales. Although interest generated more often results in back-home sales, don't neglect possibilities for dramatic displays.



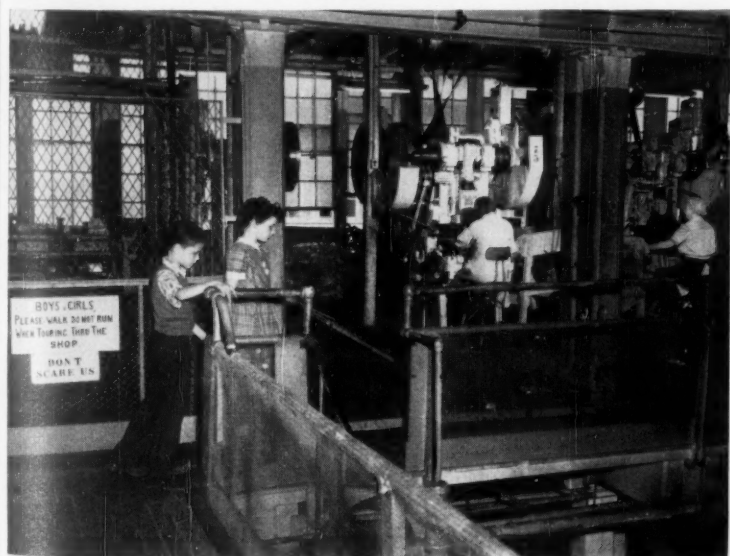
Keep your exhibits on tour. Window displays are only one of many promotion outlets. Try reciprocal lending with firms, public museums.



Dramatize applications of your industry's products. Unusual qualities are naturals for interest-catching displays, help verify advertising claims.



Versatility is important. Corning Center features movable walls, uses its auditoriums for art shows, plays, movies, community and plant functions.



Plan the museum as gateway to the plant. Worcester Pressed Steel painted white floor lines from the museum, invites guests to walk through plant.



Build your library into an important research tool. Corning's historical glass library (above) builds prestige with world-wide recognition and use.



BUILDING THE TOWER OF BABEL—BETTMAN ARCHIVE

## CAN BUSINESS AMEND ITS WAYS?

WILLIAM L. BATT



DEVANEY PHOTOGRAPH

*Differences in customs and speech, in ways of doing and ways of thinking, have been prime obstacles to successful co-operation since time began. The allied efforts toward mutual defense have emphasized these obstacles. Now the effort is to overcome them. What are the obstacles? How have they held us back? How can business men help their country, and themselves, in surmounting these obstacles?*

IN THE SUMMER of 1940, when Britain was desperately pressed for aircraft engines, she turned to American industry for help. She sent one of her Rolls-Royce Merlin engines to the Packard Motor Car Company, the only manufacturer willing to tackle the order. She also sent along about a ton and a half of engineering blueprints and drawings with the engine.

It was a most exacting engineering job. Before a wheel could turn, some 300 engineers and draftsmen had to redraw the British blueprints into American blueprints. Among other things, they had to translate the thread forms on 3,200 nuts, screws, and bolts from the English to the

American type of thread. British workmen had to be brought over to explain their shop practices to American workmen. Despite Packard's superhuman efforts, Britain and the U.S. lost almost two years in the production of the Rolls-Royce Merlin engine.

The case of the Rolls engine is a classic instance of how variations in manufacturing standards can delay production. It is only one of many examples that occurred during the war. We had every reason to take them to heart and do something to correct a deplorable situation. Have we learned our lesson?

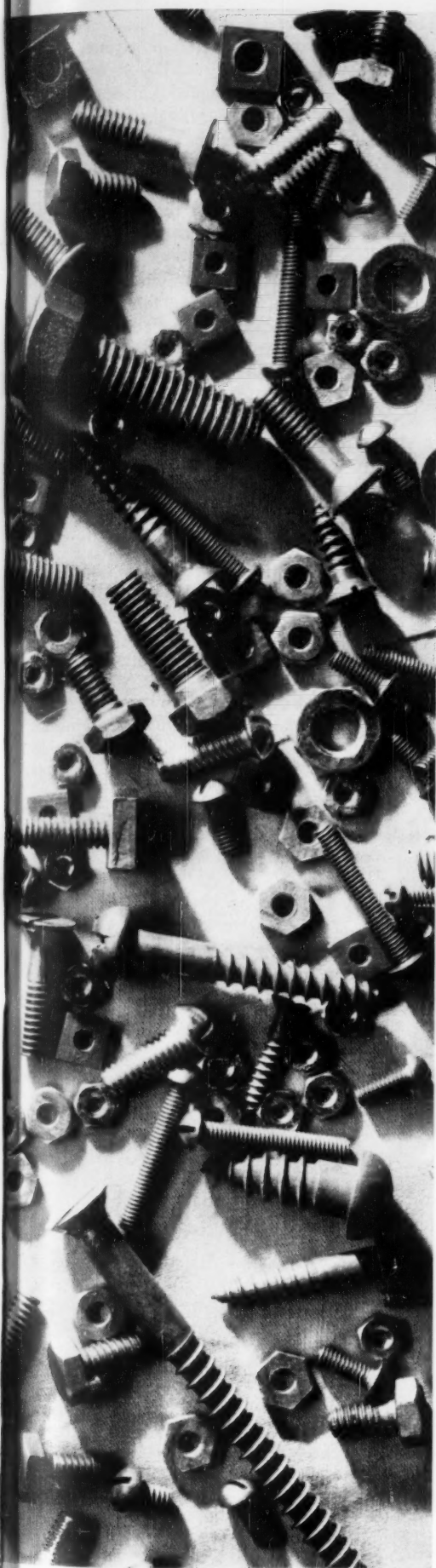
In 1951, Britain turned over her twin-jet Can-

berra bomber to the Glenn L. Martin Company for manufacture under license from the British Electric Company. Again American engineers were halted by the differences in American and British drafting procedures. They ran into long and costly delays in struggling to mesh thousands of blueprints. Through no fault of its own, the company has lost valuable time in production of a high altitude radar bomber that is needed in a critical period in our history.

On December 14, 1950, Armstrong-Siddeley, Ltd., of England, sold the rights of its J-65 Sapphire jet engine to the Curtiss-Wright Corporation. Curtiss licensed the Buick Division of General Motors to produce it for the Republic F-84-F Thunderstreak fighter. The conversion of the British drawings for American use was completed within seven weeks, but, again, the job of converting from English to U.S. specifications proved to be a difficult one. A considerable amount of redesigning was necessary.

For the third time in 35 years, our country is involved in the defense of Western Europe, and for the third time we are suffering delays and frustrations caused by small differences in





the ways we and our allies do things—by lack of unified national and international standards. I say that it is now time to order an end to this senseless waste. Regardless of what it takes to stop it, we ought to stop it now, once and for all. I believe we can remedy the situation with comparatively little trouble and expense. But no matter how troublesome or expensive the remedy may be, it will cost less than it is costing us now. It will certainly cost us less than it could cost us if our potential enemies successfully standardize their economies and we do not.

#### Watch Russia

The Soviet Union is now straining the manpower and resources of Eastern Europe to produce more iron, steel, oil, coal, machinery, and other heavy industrial goods for an integrated economy. In this Russian-controlled industrial complex, the aim is to compel each country to turn out the goods which are most needed by the Communist bloc as a whole and for which the country's resources are best fitted.

Russian leaders see very clearly the importance of standardization to their program. They are supporting the largest and most productive standards organization in the world. They are now working to standardize the weapons of all the seven Eastern European satellites with their own, so that the armaments produced in any of these countries can be used by the military forces of all the others.

In the Fall of 1951 a leading Czech engineer declared in a lecture in Prague, "We will put ourselves in the forefront of the greatest system in the world—Soviet standardization." The other day I saw a batch of new standards from Czechoslovakia—that is, engineering and industrial specifications for the manufacture of certain products, defining their composition, construction, dimensions, qualities, operating characteristics, performance, and nomenclature. Each of the Czech standards carried its title in both Czech and Russian. Each carried notations on where and how it differed from its Russian counterpart.

By decree of the Central Executive Committee of the USSR, now article 128-b of the Criminal Code of the Russian Socialist Federated Soviet Republic, compliance with such standards is obligatory. Non-compliance is punishable by imprisonment up to two years.

Under American leadership, the nations of the Atlantic Defense Community are now striving for their own economic integration and for unification of their industrial and military products and processes. We may not realize it, but in doing this we are engaging in a gigantic battle of standardization with the Soviet Union.

In a decentralized economy like ours, large numbers of our people must appreciate just as

*The mechanical requirements of modern machinery call for near-perfection, if not perfection, in every detail. The thousands of nuts, bolts, and screws are small but important items in the finished product. Minute differences here can cause major difficulties later and varying specifications do not help the matter.*

clearly as the Russian commissar what this battle of standardization means. In a system where industrial standards are developed and used by voluntary consent, as they should be, management executives, government officials, union leaders, engineers, production men, and technicians of all kinds must understand just what is at stake and what must be done.

Standardization is a key to the power, speed, and efficiency of any modern military force in the field. It is even more vital where armies of different nations join for their common defense. One of the handicaps affecting the armies of the Western Alliance has been lack of common standards for language, weapons, equipment, training, and procedures. In the Spring of 1951, for example, a French infantry unit was engaged in field maneuvers with American artillery support. The operation went to pieces because of differing standards. The American pieces were calibrated in mils and yards and were laying on targets on French maps showing degrees and kilometers.

#### NATO solutions

To cope with such problems, NATO has created a Military Standardizing Agency which reports to the top military directorate. A Technical Procedures Committee, which meets in Washington, is carrying out an intensive military standardizing program among the three ABC countries—America, Britain, and Canada.

The ideal objective of military standardization would be for every allied country to use military equipment manufactured from common blueprints and identical down to the last nut and bolt. But that is only a dream to-day, and the minimum objective of the present allied program is to insure that military equipment used by the allied countries is interchangeable in the field.

A secondary goal is that subassemblies and major parts of the equipment be interchangeable, even though lesser parts are not identical. A common jeep, for example, might be produced by several of the NATO countries and used by all. Many of its parts could be different but it would have the same engine, gear box, axles, tires, and ignition system.

While we are still in Phase One of the minimum program, some progress in NATO military standardization has been achieved. NATO has signed 62 standardization agreements and has drafted 124 more. Small arms and ammunition are pretty thoroughly standardized, despite differences between us and Britain on the caliber and design of a new shoulder rifle. A fighter plane is being produced in Europe with an engine built by Belgium and the air frame by Holland. NATO has built a number of air bases in Western Europe, with standardized runways, lighting, storage, and fueling facilities. The greatest progress has been made in the design of electronic and radio equipment for military use.

A program has just started for standardizing medical equipment, training, and techniques, and it will take up such things as transfusion

equipment, first aid tags and bilingual tickets for combat casualties, agreement on standard dosages of dangerous narcotics, immunization requirements, and perhaps a common medical catalog. When the program is completed in two or three years, a British stretcher will fit the trolleys of an American ambulance, and a Turkish needle will fit on a French syringe. They don't fit now.

The ABC countries have achieved a substantial measure of military standardization. Britain, Canada, and the US have agreed on about 400 items as common standard equipment, including an anti-aircraft weapon and its ammunition, the 28-ton "Walker-Bulldog" tank, 8-inch, 75-millimeter and 240-millimeter howitzers, fuel, lubricants, and electric voltage systems.

### North American Unification

The US and Canada are in most respects one nation as far as military equipment is concerned. The US is buying Canadian aircraft and arms, including anti-aircraft guns for Navy use. Canada is making our F-86 Sabre jet and is buying tanks, rifles, planes, automotive equipment, and spare parts from us.

True military standardization, however, must go beyond such superficial unification of products as this. Standardization begins in the factory and not in the field. It must be based on fundamental engineering practices. When we have that, we can have full interchangeability of parts. Different nations can maintain equipment in the field that they received from other nations. One nation can use the drawings made in another country and know that the products it makes from them will be identical in dimension and performance.

In normal times we could muddle along without such basic standardization of armaments with our allies, and could afford to waste time, manpower, money, and materials. But these are not normal times. We are straining ourselves to carry out our national military and economic objectives. We are attempting to save ourselves and our friends by restoring the balance of military power in the world, while we struggle to stabilize Western Europe by expanding its economy and improving its trade.

Consider the complexity and magnitude of the interchange of military goods between us and our allies.

*We are making arms in the US for shipment to Europe.* Such shipments are now running close to \$1 billion per quarter. We have supplied much of the present military equipment of the NATO nations. The British Royal Air Force, for instance, is now receiving between 300 and 400 of our F-86 Sabres as part of a program to bring its fighter planes to full strength.

*We are making arms in the US to European design.* The Canberra bomber and the Sapphire engine are examples.

*We are buying tremendous amounts of military goods in Europe.* In the fiscal year ending this June, we placed orders totalling nearly \$1

billion for arms and equipment built in thirteen nations. Most of the orders were placed in France, Italy, and Britain, and were for US-type items. We have ordered ammunition, rockets, mortar shells, grenades, electronic and engineering equipment, and auxiliary combat vessels. We are working on a program that should produce some 1,400 jet fighter planes built in European factories for the NATO armies. Last December we placed the biggest single offshore order—\$90 million for 500 Centurion tanks built in the United Kingdom for use in Denmark and the Netherlands.

### Basic Needs

Where there is such production of common goods, such common interchange and common use, there obviously must be common standards. The participating countries should have the same drawing procedures, screw threads, bolt and nut heads, selection of sizes and ratings, measuring gages, tolerances for parts of cylinders, and other principal and fundamental engineering practices.

We need, first of all, a comprehensive set of true national standards within the United States. Our industry is the most highly standardized in the world. Application of the principles of standardization is perhaps the most outstanding characteristic of American management. But we still do not have such national standards. We sorely need the economies, the increased production, and the added efficiency that they would

be bound to bring.

Our situation to-day is certainly better than it was eleven years ago, when as a War Production Board official I begged American industry to "patch and pray." Military procurement standards are far better than they were then, largely because procurement officers have geared their thinking and practices to mesh with the mass production potential of the country. Army Ordnance, for instance, was using as many as ten different engines in one tank model during World War II, but it has now standardized engine parts so that it can use four engines in eleven different vehicles. The Federal Government has finally decided to use nationally accepted industry standards on thousands of common items instead of writing their own federal standards, and that is a most encouraging development.

In many fields, however, we have made little or no progress. To meet the same problems and headaches to-day that plagued us in two World Wars is like dreaming a nightmare for the third night in a row.

We have no national standards in America for drawing and drafting room procedures—not even for the sizes of the blueprint paper on which the drawings are recorded. Our manufacturers must still lose time and manpower remaking military drawings to their own company or industry standards, so that there may be no misunderstanding by shop personnel. Their subcon-

*Continued on page 164*



DEVANEY PHOTOGRAPH

*The fact that English is the common language of the three great allied powers, United States, England, and Canada, does not eliminate the possibility of differing terminology. It is all too prevalent and, in times of crisis when hours and minutes count, the time wasted in interpreting, adapting, redrawing, and understanding another country's blueprints cannot but hinder the Western powers. Standardization may dispel some of the waste.*



# WORKER ATTITUDE ON INCENTIVES

*Emergence of incentive wage plans as a major collective bargaining issue points up the importance, to both management and unions, of learning the facts about this kind of plan. Here are new findings.*

ALFRED G. LARKE

*Employer Relations Editor*

## *A big union bids for more "say"*

Management interest in making incentive wage programs work better received a lively prod this Fall. The rowelling came from the CIO United Steelworkers union, which began wondering out loud if it were not time to adopt a national policy on incentive pay.

At a joint meeting of its executive board and its wage policy committee in New York, the steel union suggested that details of incentive wage plans be made an issue in nation-wide collective bargaining.

It may disconcert some management men to see a major union turning its concentrated attention on incentive wages: We have enough trouble now, they will say. But there should be solace in the fact, too, for the Steelworkers' approach in effect is: How can we get along with incentive wage programs?

Opposition to incentive pay was once one of the most unshakable policies of organized labor, especially in the manufacturing industries.

At conventions, unions have condemned incentive wages, even while contracts old and new continued to provide for this kind of pay.

The Steelworkers' move is a step in the direction of realism. It is recognition of the fact that most workers who enjoy incentive pay don't want to abandon it—they want only to improve it.

It is difficult to bargain with men who don't want what you have to sell, no matter what the price. If they want what you have and wish to dicker only on quality or terms, agreement is possible, even though reaching it may be difficult.

There was a tentative tone about what the union's officials had to say on incen-

tive pay, as indeed there was about some of the guaranteed-wage talk. Whether by intention or not, some of the speakers left their remarks open to some such interpretation as this: "Here is what we want. Don't reject it arbitrarily. Make an offer; perhaps we can get together on it."

Elmer J. Maloy, director of the wage division of the union, asked questions about what the union's attitude should be on incentives, rather than presenting a fully drawn-up position.

The problem, he implied, is not whether to endorse or condemn incentives, but how to live with them. He suggested incentives should cover more employees in each plant than they presently do, that the union would have no objection to time study if it were only one factor in setting rates, production being another important one. He suggested that incentives should be designed to give 35 per cent over the basic hourly rate or more. He added that arbitration and strikes have less to offer as a means of settling disputes on incentive wages than have negotiation and mutual agreement.

No promise of heaven on earth though it may be, the Steelworkers' newly announced attitude is a break in the rather solid official front against incentives. It is reasonableness, if not sweetness.

Its most import result could be to turn policy-making executives' attention to means of improving their incentive wage programs. As a starter, they can do no better than investigate findings of the Human Relations Program of the Survey Research Center at the University of Michigan, detailed for the first time in the following columns.

**W**HAT DOES the employee on incentive wages think of his pay plan? What kind of foreman has the work crews most satisfied with incentives?

Curbstone opinions on these subjects are a dime a dozen, but it may gratify those who achieve their opinions by common observation, or by inspired guesswork, to learn that a systematic investigation of the matter confirms many of the usual conclusions.

Scientific backing for some of the seemingly obvious, but previously unverified, convictions about employee attitudes towards incentives has been developed in the course of the Human Relations Program of the Survey Research Center at the University of Michigan. Some unexpected conclusions are also pointed to.

The study was made possible by the interest of a corporation and a local union in the subject of incentives and in the furtherance of objective research. They are among a select group of similar organizations whose courageous participation in the Center's long-term program promises new knowledge of human beings at work.

Under direction of Dr. Robert Kahn of the SRC, Dr. Gerald M. Mahoney, an SRC study director, has studied the attitudes towards incentive wages of the 2,500 production employees of a large metal fabricating corporation. Of this number, about 1,500 were on incentive jobs—some 700 on group incentives and some 800 on individual incentives—while the other 1,000 were paid at straight hourly rates.

Attitudes and opinions of the employees towards the company, their foremen, and the company's time study and incentive system were measured in terms of their answers to a large number of items in a written questionnaire.

Percentages on the direct answers are of interest to any executive responsible for production under an incentive scheme, and to unions, too. They display a considerable variety of superficially contradictory attitudes—but also largely explain the apparent contradictions.

And, when the study begins checking employees' answers to these direct questions against their opinions of their foremen, it passes beyond

satisfying curiosity to pointing the way to improving the working of the incentive plan. The function of the foreman as a *middle man*, representing individual employees at the same time he represents management—if he is to be a successful foreman—is strongly pointed up.

Here are the findings, in one company, as to direct answers to opinions of incentives:

- Most employees who work under incentives favor the idea of such a system, as a way of paying workers, 60 per cent of them *strongly*. Only 10 per cent oppose incentives.
- When asked how they would like to be paid, about 75 per cent of incentive workers said they would like to remain on incentive pay. While most non-incentive workers were not opposed to incentive plans in general, a majority of them said they preferred straight hourly pay for themselves.
- Yet, a majority of incentive workers expressed some dissatisfaction with the way incentives work out at their company.
- But a majority were satisfied with standards on their own jobs.
- About 68 per cent of incentive workers said standards get changed because a man starts hitting a high productivity percentage figure.
- But, when asked why this happens, fewer than one in five said it had happened to them *personally*. Most said it had happened to other people or foresaw it as a possibility.

Of course, few workers achieved such extremely high production that a real question of job methods changes arose. Changes in standards because of high productivity could not, therefore, have "happened" to most of them as a first-hand experience.

- A seventh point: Fewer than 50 per cent of group incentive workers liked that method of pay for themselves; however, another 32 per cent of them favored individual incentives.

This left the score, roughly: If they have individual incentives, they like them; if they have group incentives, they'd prefer individual ones; if they don't work under any kind of incentive, they prefer to remain on hourly pay.

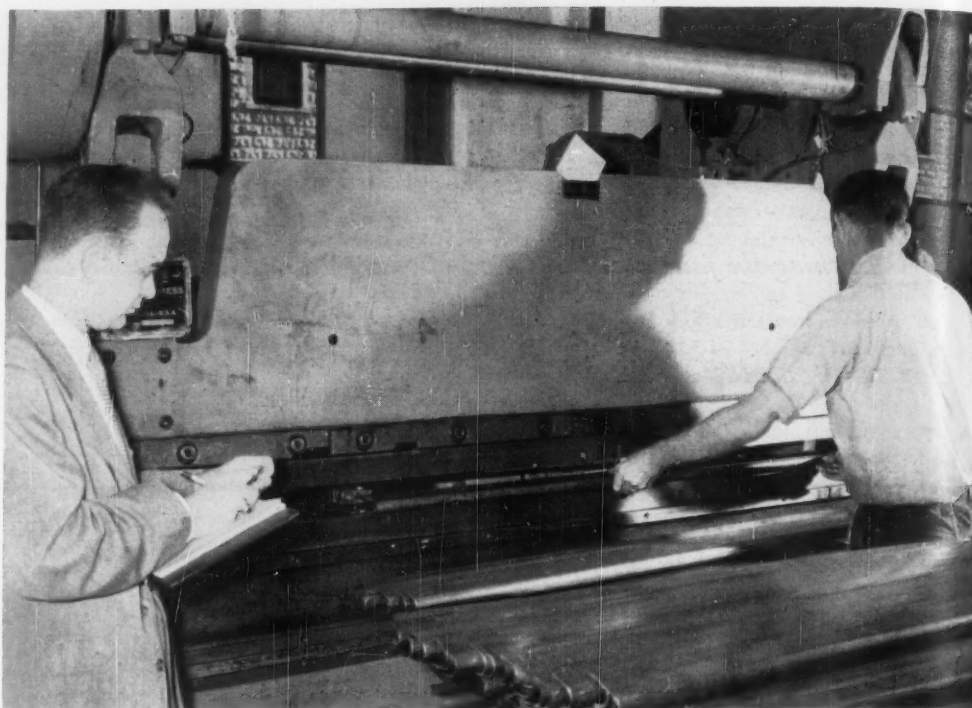
### Want Bigger Union Role

- A majority of the workers felt that the union should have more say in setting labor standards on a job than it now has, and that union stewards should have more say in their departments generally.

Crosschecking answers to one set of questions with those to another produced for the SRC some additional findings, some of them expected, others surprising; all useful to a company interested in bettering the functioning of its incentive wage system and to a union seeking to determine its policy regarding incentives.

- Workers who most liked the company as a place to work were the ones who were most satisfied with the incentive plan.

The correlation ran all the way down the line. Of those who thought the company "a very good place" to work, nearly 85 per cent liked the



When the time-study engineer explains the reasons for checking standards, workers like the incentive system better. Advance explanation by foremen increases acceptance, also, U. of M. finds. Here: Nicholas A. Cruger, staff consultant of George H. Elliott & Company, makes a typical time study.

incentive; of those who thought it "a good place," about 67 per cent liked the incentive; "a fairly good place," about 40 per cent; "all right," about 22 per cent; "not too good," 17 per cent.

- Slightly less than half of the incentive workers said their foremen are good at explaining the reasons for changes in a labor standard. These workers are better satisfied with incentives than those whose foremen are seen as "poor" at explaining, or as not trying to explain.

This finding, Mahoney points out, suggests "only an association" between the two factors and "not a causal relationship." However, when details of the incentive system are considered, he says, "it seems a reasonable inference that communication by the foreman would be an important influence on worker attitude in this area. On the other hand, the degree of association is not high; this suggests that other factors must also play an important part."

- More surprising, probably, is the fact that workers who said their foremen try to get them to follow prescribed methods of work were better satisfied than workers who said their foremen wouldn't do anything about their not sticking to standards. They were also as well satisfied as those who said their foremen would do nothing so long as the man, the machine, or the quality of the work were not harmed.

The difference was not great, but the trend was definitely against those foremen who were completely passive about getting the men to stick to the prescribed ways of work.

The University of Michigan's researchers had had an impression, based on early scouting interviews and informal conversations, that men

whose foremen were the greatest sticklers for methods would be the least satisfied.

This finding was discussed among department heads and foremen, with a prediction resulting that the foreman who (a) tries to get his people to follow prescribed methods and (b) also does a good job of explaining reasons for changes in standards would have employees who were best satisfied with the incentive plan.

- Where the foreman doesn't give a hoot about whether men follow methods, it makes no difference whether he is good at explaining changes or not. Foremen who are "very good at explaining," but are not active in enforcing methods, have crews that are about 38 per cent favorable to incentives. Foremen who "don't try to explain," and are not active in policing methods, have slightly over 40 per cent satisfied workers.

But, turning to foremen who *try* to have prescribed methods followed, the picture is quite different. Those who are alert as to procedures being followed *and* are good at explaining changes have a high proportion of men satisfied with incentives—about 67 per cent. But those who *try* to have procedures followed but don't try to explain changes have fewer than 10 per cent of satisfied workers.

Says Mahoney: "There is a strong temptation to speculate that the most effective leadership is that in which the foreman assumes the technical responsibilities of his role and, at the same time, does a good job of communicating to the operator and, thereby, of involving him in the whole job process."

Or, if the foreman is going to be a boss, he'd better be a *good* one. The foreman who tries to



boss the job, but doesn't do well at communicating, apparently gets worse results than the foreman who lets *both* parts of his job just drift—both bossing and communicating.

Considering these findings as a whole, there is a strong implication that incentive workers under foremen who try to look out for the employees' interest as well as the company's are most likely to be satisfied with the system.

Those whose foremen tend to be wholly company-oriented, or wholly employee-oriented, do not seem as often to be satisfied with the company's incentive program.

This interpretation is given further weight when worker satisfaction is checked against answers to the question, "Can a line foreman usually satisfy both the company and the men, or must he take sides?"

Of the men who felt a foreman could always satisfy both, 76 per cent were satisfied with the incentive system, it was shown. Only 13 per cent of those who said, "He always has to take sides," were satisfied.

### Want Foremen to Help

• More to be expected were the results of checking incentive-satisfaction against responses to the question, "If your line foreman thought the labor standard on a job was too tight, would he try to do something about it?"

Fewer than half the incentive workers said their foreman would try "very hard" or "fairly hard" to do something about the rate.

Of those who said, "He would try very hard," 55 per cent liked their incentive plan. Only about 12 per cent of those who said, "he wouldn't try at all" were content with the system. The curve from the first to the last question was a straight, descending line.

The employee-oriented foremen had the incentive-oriented employees.

• A similar relationship, but not so strongly pronounced, was detected in replies to the question, "If your line foreman thought the labor standard on a job was too tight, how much *could* he do about it?" This contrasts with the last previous question—"How much *would* he do?"

About two thirds of the incentive workers thought their foremen could at least "do something" about a rate they thought was too tight. These workers were more content with incentives than those who thought their foremen "couldn't do much" or "could do nothing."

• The foreman who *can* and *does* do something about tight labor standards has the highest incentive-satisfaction among his crew. But if he is believed to have the power to effect changes, it does him no good if his employees think he wouldn't use this power.

Even if he is the kind of foreman who "would try hard" to effect a change, his crew is less apt to like incentives if they believe he hasn't the weight to get the changes made.

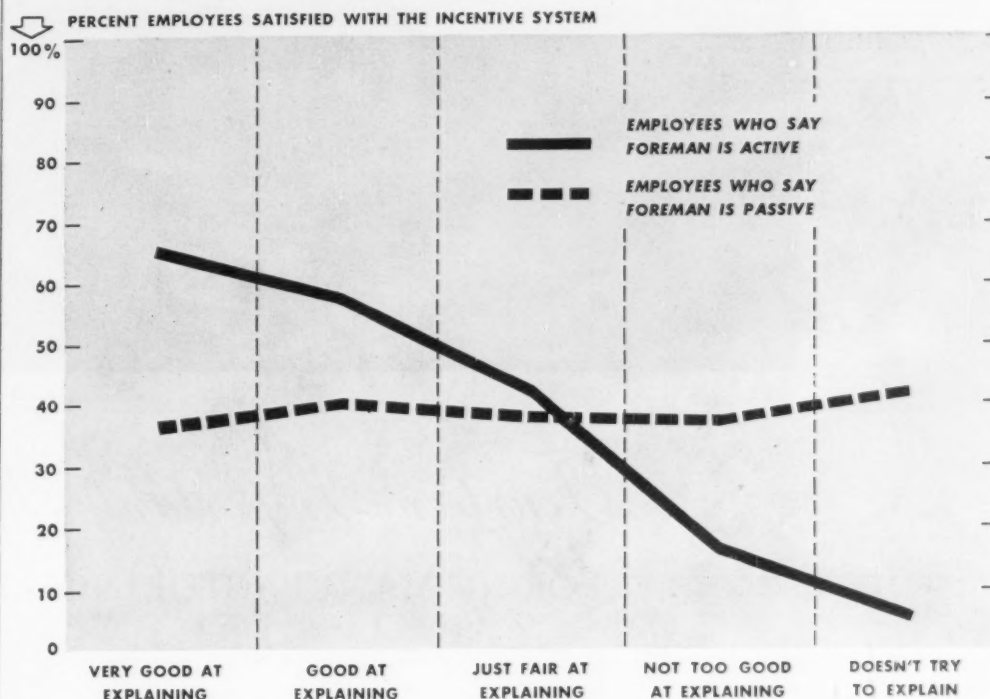
Having authority, the foreman must exercise it; exercising it, he must exercise it well.

THE END

## Good foreman, good incentive plan

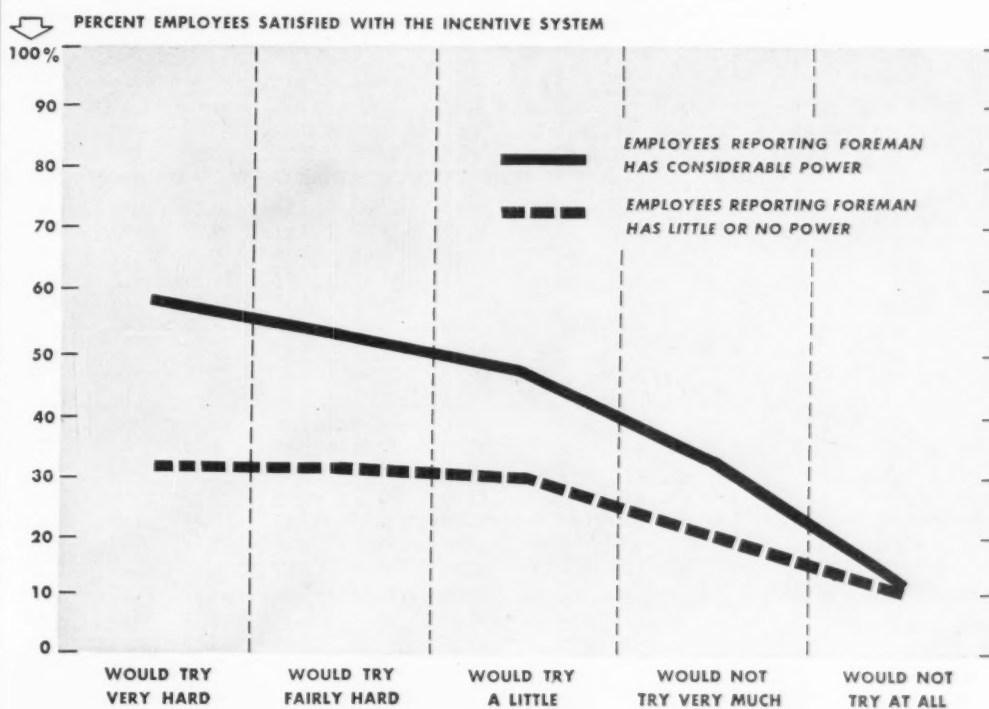
Where foremen are "passive," not bothering whether employees keep to prescribed methods of work, U. of M. found, it makes little difference in employee attitude towards incentives whether the foremen are good at explaining rate

changes or not (dotted line, below). But where foremen are "active" in demanding adherence (solid line), there is a sharp difference between workers whose foremen are good explainers and those whose foremen are poor at it.



If a foreman *can* do something about unjust rates, and does, acceptance of incentive system is good; if he can, but doesn't, do anything to right a bad rate, employee morale as regards incentives is poor. Variance is less where he is seen

as unable to correct an injustice. Solid line below represents attitude of workers who think their foremen "have power" to do something about a "tight" rate, broken line the attitude of those whose foremen can't do anything.





DEVANEY PHOTOGRAPH

## Fourteen Important Ratios FOR 36 MANUFACTURING LINES

*These useful ratios for manufacturers have been compiled for more than two decades by Roy A. Foulke, Vice-President of DUN & BRADSTREET INC. They are a unique set of guide-posts for business men who wish to compare their operations with those of others in the same line. The ratios for 12 retail lines and 24 wholesaling lines appeared in the October and November numbers of this magazine. The ratios are defined on page 66.*

Line of Business (and Number of Reporting Concerns)	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Wkg. Cap.	Net Sales to Tangible Net Worth	Net Sales to Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth	Inventory to Net Working Capital	Current Debt to Inventory	Funded Debts to Net Wkg. Capital
	Times	Per Cent	Per Cent	Per Cent	Times	Times	Days	Times	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
FOR 36 MANUFACTURING LINES—1952—MEDIAN AND QUARTILES														
Automobile Parts and Accessories (69)	3.26	4.98	14.57	22.69	3.95	6.27	35	8.6	30.8	29.7	53.2	50.1	64.7	21.9
	2.46	3.38	10.85	15.59	3.01	4.99	40	6.7	43.4	43.8	68.8	77.4	90.2	29.1
	1.97	1.58	4.00	6.61	2.26	3.36	50	4.9	53.2	62.4	107.6	105.9	149.2	44.4
Bakers (37)	3.09	3.39	13.74	42.61	5.52	19.46	7	39.0	55.4	20.2	38.5	40.0	76.8	19.5
	1.94	2.39	9.99	28.99	4.12	14.31	10	22.3	74.8	32.0	59.2	68.7	136.5	83.5
	1.49	1.52	5.59	15.77	2.96	8.20	15	11.8	88.7	45.7	105.4	102.9	249.2	107.3
Bedsprings and Mattresses (59)	5.19	3.98	14.45	17.07	5.42	9.61	28	11.1	18.8	17.1	41.4	47.0	40.7	13.8
	3.22	2.58	10.33	13.94	3.37	5.78	38	7.6	28.9	25.4	59.5	69.3	80.6	18.1
	1.96	1.81	6.25	12.09	2.28	3.41	54	5.1	40.8	56.1	91.1	105.4	104.8	43.5
Bolts, Screws, Nuts, and Nails (43)	2.87	6.45	19.16	43.95	4.33	10.30	26	10.8	28.9	27.8	43.5	53.4	78.9	11.2
	2.34	4.95	13.39	26.60	2.85	5.20	32	7.4	45.0	43.0	61.7	76.4	107.7	25.5
	1.71	2.82	10.15	22.86	2.32	4.32	40	5.6	53.6	71.8	88.3	107.1	146.0	42.3
Breweries (42)	3.60	5.67	14.95	49.27	2.70	13.27	8	17.7	62.6	13.6	31.9	48.8	81.6	28.7
	2.00	3.17	10.29	25.02	2.40	9.23	18	12.6	75.7	23.5	37.8	64.8	131.6	64.1
	1.40	0.54	1.40	5.18	2.04	5.24	36	10.8	93.0	34.1	55.5	104.6	184.6	78.3
Chemicals, Industrial (68)	3.73	7.93	12.75	36.79	3.03	6.41	25	9.7	33.6	17.3	43.9	44.7	60.3	20.1
	2.65	4.59	9.30	17.84	2.02	4.47	30	6.0	56.0	27.7	55.9	60.5	92.7	45.4
	1.79	2.26	5.70	10.75	1.23	2.41	39	4.4	74.1	44.1	83.0	87.9	135.4	88.6
Clothing, Men's and Boys' (211)	4.80	3.25	11.15	14.72	5.13	5.47	29	7.8	2.4	23.3	45.6	52.5	43.3	8.4
	2.93	1.25	5.32	5.94	3.63	4.06	49	5.6	7.3	44.3	78.7	76.2	68.8	18.0
	1.89	0.31	1.39	1.49	2.20	2.58	78	4.1	13.4	91.1	121.4	110.2	110.1	31.5



# Fourteen Important Ratios

Line of Business (and Number of Reporting Concerns)	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Wkg. Cap.	Net Sales to Tangible Net Worth	Net Sales to Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth	Inventory to Net Working Capital	Current Debt to Inventory	Funded Debts to Net Wkg. Capital
	Times	Per Cent	Per Cent	Per Cent	Times	Times	Days	Times	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
FOR 36 MANUFACTURING LINES—1952—MEDIAN AND QUARTILES														
Coats and Suits, Women's (78)	4.13	2.90	14.11	15.06	5.78	8.93	23	13.1	2.3	25.5	*	41.4	60.1	*
	2.78	1.19	6.01	7.15	4.87	5.81	31	7.7	5.4	52.8	*	63.4	101.4	*
	1.73	0.23	1.66	1.77	3.44	3.51	45	5.9	15.4	100.8	*	110.4	144.1	*
Confectionery (46)	4.67	3.80	11.62	23.07	3.55	8.06	13	14.4	33.9	14.3	31.7	43.4	47.8	16.1
	3.11	2.77	8.53	19.94	2.98	6.93	16	8.6	50.9	22.7	33.5	64.4	65.2	48.5
	2.19	1.40	4.01	10.57	2.69	5.92	26	7.3	66.4	34.2	70.1	93.7	107.1	82.1
Contractors, Building and Construction (130)	2.65	2.40	16.01	24.92	13.10	18.83	**	**	9.8	37.8	61.2	**	**	10.0
	1.80	1.30	9.63	12.20	7.92	11.17	**	**	19.7	83.2	116.9	**	**	22.5
	1.45	0.56	3.77	5.47	3.80	6.56	**	**	34.8	165.7	219.3	**	**	52.4
Contractors, Electrical (43)	3.89	5.91	24.34	26.00	7.35	10.68	**	**	6.2	23.5	51.9	**	**	7.7
	2.45	3.39	14.96	20.45	5.04	7.74	**	**	17.7	50.1	81.8	**	**	20.5
	1.66	2.05	8.18	12.86	3.49	4.02	**	**	29.9	89.8	113.8	**	**	64.8
Cotton Cloth Mills (48)	5.35	3.25	6.82	14.36	2.61	4.74	17	6.0	28.7	8.8	23.0	56.9	26.5	14.7
	4.13	1.30	2.81	5.60	2.10	3.81	34	5.3	47.1	16.6	43.8	75.3	47.8	31.0
	2.73	1.55†	2.29†	4.91†	1.63	2.99	50	3.8	64.8	25.2	56.3	102.2	73.2	54.7
Cotton Goods, Converters, Non-Factored (29)	5.34	3.40	14.57	17.97	6.35	8.01	23	6.5	0.3	20.3	*	60.0	28.3	*
	3.18	2.27	11.63	11.71	4.44	5.16	48	5.1	1.1	36.8	*	80.5	62.1	*
	1.81	0.19	0.83	0.89	2.34	2.36	58	3.6	3.3	68.8	*	96.0	103.9	*
Curtains, Draperies, and Bedspreeds (50)	5.38	3.49	12.13	17.28	4.56	6.04	28	9.3	6.3	29.0	37.6	51.6	51.9	13.4
	2.58	1.37	4.14	4.68	2.58	4.15	40	7.5	13.5	51.7	58.1	85.8	83.3	25.2
	1.74	0.62	2.09	2.51	1.64	2.58	63	4.3	31.3	101.7	109.2	124.4	125.3	46.5
Dresses, Rayon Silk, and Acetate (78)	2.98	2.05	12.35	14.69	10.58	13.57	20	27.0	3.9	38.5	51.6	40.7	75.9	15.5
	2.22	0.71	5.42	7.21	7.33	9.16	33	17.1	9.9	67.1	88.7	69.0	126.6	24.4
	1.60	0.23	2.34	3.03	4.78	7.01	40	8.3	15.4	127.6	136.7	103.9	216.7	41.5
Drugs (38)	4.85	9.49	14.45	25.45	2.54	4.22	27	6.9	15.5	18.9	34.4	48.0	44.5	18.9
	3.41	5.79	10.51	15.16	1.53	2.65	42	4.5	37.3	25.7	49.0	61.4	59.6	40.1
	2.15	2.19	3.87	8.65	1.25	2.10	52	3.5	50.0	43.9	104.4	86.9	93.6	47.1
Electrical Parts and Supplies (76)	2.88	6.43	19.69	30.80	4.87	7.48	29	7.0	23.5	36.2	55.6	68.4	62.3	8.1
	2.19	5.04	14.45	22.94	3.33	5.33	34	5.5	33.8	52.6	85.5	94.3	93.6	23.8
	1.73	2.89	10.67	13.82	2.20	3.49	49	3.6	45.7	104.6	131.9	125.3	128.7	40.5
Foundries (98)	3.45	4.61	14.18	31.11	4.16	9.67	25	11.3	35.0	21.8	39.4	48.7	71.4	16.4
	2.36	3.80	11.10	21.90	2.87	5.80	33	7.4	48.2	35.1	56.4	68.2	102.8	36.9
	1.89	2.52	7.13	14.68	2.10	4.48	40	6.0	64.5	51.8	105.6	95.6	148.4	91.2
Furniture (143)	4.60	4.30	11.13	17.94	3.18	5.43	33	8.4	15.5	18.1	34.5	55.8	41.0	8.4
	3.17	3.13	8.15	13.29	2.48	4.02	39	5.6	31.3	31.1	45.2	77.5	62.7	27.7
	2.23	1.39	3.19	5.45	2.03	3.28	46	3.8	45.8	50.9	74.2	103.4	97.9	29.2
Hardware and Tools (91)	4.51	6.32	14.64	25.85	3.75	6.50	26	8.1	27.9	19.2	43.0	55.2	43.7	16.4
	2.83	3.92	9.44	16.30	2.44	3.77	32	4.9	39.5	31.6	56.7	82.9	60.1	26.4
	2.03	2.87	6.88	12.97	1.70	2.82	40	3.2	51.5	49.1	89.7	113.2	104.8	38.2
Hosiery (60)	4.74	3.98	9.63	19.52	3.55	8.54	19	10.8	31.1	12.6	25.4	52.7	43.5	15.2
	2.96	1.54	5.28	11.21	2.02	4.78	31	7.3	52.1	22.2	49.6	75.7	66.3	30.7
	2.01	0.65	2.06	5.51	1.42	2.85	39	4.8	63.3	45.5	74.6	125.6	106.9	61.1
Machine Shops (110)	3.28	6.48	20.51	38.89	3.55	7.30	26	9.7	30.1	26.4	43.7	54.8	73.5	11.4
	2.19	4.98	14.53	22.90	2.54	4.91	35	5.9	45.5	46.4	66.1	83.9	107.2	31.5
	1.76	3.39	10.26	16.57	2.08	3.34	46	4.5	55.8	71.1	114.9	111.0	163.4	50.2
Machinery, Industrial (340)	3.55	5.58	15.30	23.87	3.58	5.73	32	6.1	23.4	26.9	51.6	61.2	52.2	17.5
	2.52	4.48	11.88	17.14	2.81	4.03	42	4.6	33.7	43.5	78.1	80.9	83.5	27.7
	1.80	2.88	7.96	11.97	2.05	2.94	54	3.5	48.5	76.9	110.9	114.1	120.4	40.9
Meat and Provision Packers (62)	2.85	1.18	11.91	21.59	12.61	27.99	9	39.7	40.5	27.0	49.8	54.8	62.2	20.5
	2.19	0.66	6.29	14.44	9.64	22.01	12	28.0	55.9	39.8	76.0	76.4	92.5	44.8
	1.68	0.26	1.41	5.20	8.35	17.57	17	19.0	73.9	63.5	100.7	105.0	141.4	64.9
Metal Stampings (86)	4.08	5.96	14.96	39.02	3.61	8.52	25	9.4	30.9	17.3	52.1	54.2	54.1	12.6
	2.69	3.86	10.38	23.32	2.69	4.82	33	7.5	46.6	32.5	71.0	77.7	86.9	34.8
	1.82	2.13	5.36	13.65	2.15	4.07	45	4.9	65.4	49.3	93.1	112.7	123.6	71.9
Outerwear, Knitted (60)	3.53	3.91	13.35	17.75	4.47	7.56	17	6.2	5.3	29.6	40.0	42.9	60.6	13.5
	2.38	1.96	8.76	13.03	3.20	4.56	40	4.8	13.9	56.5	90.4	86.6	85.1	32.9
	1.71	1.87†	4.71†	9.08†	2.14	3.64	54	3.2	31.7	90.0	123.6	138.2	115.4	38.5

# Fourteen Important Ratios

Line of Business (and Number of Reporting Concerns)	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Wkg. Cap.	Net Sales to Tangible Net Worth	Net Sales to Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth	Inventory to Net Working Capital	Current Debt to Inventory	Funded Debts to Net Wkg. Capital
	Times	Per Cent	Per Cent	Per Cent	Times	Times	Days	Times	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
FOR 36 MANUFACTURING LINES—1952—MEDIAN AND QUARTILES														
Overalls and Work Clothing (43)	4.90 3.46 2.37	2.65 1.58 0.37	9.99 5.89 1.82	15.77 7.20 2.47	4.88 3.77 2.94	5.40 4.63 3.79	20 30 43	10.6 5.5 2.7	9.8 14.4 22.4	22.3 34.6 61.3	25.8 42.9 81.8	60.8 84.4 110.6	36.6 52.0 73.6	6.4 16.2 22.7
Paints, Varnishes and Lacquers (142)	5.71 2.55 2.51	4.29 2.30 0.95	11.45 5.85 3.39	17.40 9.29 5.41	4.26 2.70 2.26	6.98 4.78 2.93	23 36 43	10.7 7.8 5.0	21.6 32.4 48.3	13.7 22.7 29.3	29.3 47.6 71.3	47.3 65.2 86.4	39.2 61.8 95.2	7.2 19.9 54.6
Paper (62)	3.75 2.84 2.18	8.10 5.00 3.19	11.19 9.45 6.60	26.16 20.30 13.69	2.31 1.74 1.13	5.24 4.09 3.03	21 27 33	10.1 6.7 4.1	46.7 63.6 80.9	17.6 24.4 34.4	32.6 51.9 67.3	57.6 76.8 92.6	51.8 77.3 113.0	30.9 56.3 70.0
Paper Boxes (64)	3.09 2.26 1.98	6.78 4.52 2.99	12.59 11.26 7.75	32.59 25.56 20.46	2.59 2.18 1.79	7.97 5.48 3.90	22 25 33	13.3 10.7 6.9	43.3 56.3 73.0	20.9 28.5 38.1	35.9 49.3 63.2	47.1 59.8 85.2	77.5 108.7 165.5	24.1 49.7 86.2
Petroleum, Integrated Operators (37)	2.74 2.18 1.62	10.52 7.97 5.71	14.29 11.86 9.56	78.87 48.78 29.10	2.27 1.68 1.09	12.30 5.86 3.54	22 30 37	12.6 8.1 7.2	64.2 85.2 110.8	16.8 24.9 33.8	29.5 48.5 64.2	51.3 81.0 100.8	98.8 127.9 178.7	33.5 72.7 166.8
Printers, Job (63)	3.11 2.32 1.96	4.11 2.38 1.10	10.45 5.01 2.59	24.59 13.49 5.70	3.81 2.80 2.22	8.60 6.24 4.13	28 35 46	† † †	34.4 48.6 66.9	22.4 30.4 50.5	38.4 49.9 69.8	† † †	† † †	18.2 51.1 57.9
Shirts, Underwear and Pajamas, Men's (48)	3.24 1.99 1.60	2.94 1.22 0.57	7.97 5.44 2.77	9.89 6.16 3.19	6.74 4.39 2.75	8.16 4.99 2.90	39 51 58	19.3 6.2 5.9	1.8 11.4 22.8	31.9 84.6 120.6	66.6 107.6 142.6	67.7 104.9 143.4	65.9 93.4 142.3	6.7 24.0 40.0
Shoes, Men's, Women's, and Children's (104)	3.84 2.60 1.82	3.30 2.20 0.85	10.40 7.46 5.58	5.38 9.78 6.65	5.55 3.39 2.84	6.13 3.80 3.08	36 42 49	8.8 5.4 4.1	10.2 17.6 24.7	28.8 50.1 89.3	54.2 62.1 96.2	59.4 77.4 118.9	50.5 74.4 139.5	15.2 29.8 34.6
Steel Structural Fabricators (Sell on Short Terms)	4.30 2.92 2.09	6.78 4.02 2.01	18.56 12.54 8.91	28.73 20.89 13.91	5.54 2.59 2.11	8.76 3.92 2.77	26 35 51	6.9 5.3 4.0	19.9 32.7 42.4	22.8 35.4 61.6	74.3 86.8 114.0	47.7 76.9 106.7	46.5 83.5 148.4	5.4 28.0 42.8
Stoves, Ranges, and Ovens (55)	5.28 3.60 2.70	4.93 2.06 0.20	11.03 5.92 0.46	17.62 8.61 0.95	3.34 2.35 2.02	4.98 3.83 2.69	30 38 54	6.6 4.6 3.9	24.7 35.8 49.0	14.2 24.0 44.1	52.4 65.2 96.0	46.3 75.2 96.1	36.0 58.3 82.6	18.3 39.1 50.2

## FOOTNOTES

†Loss.

\*Computed only for those lines of business in which a number of concerns had outstanding long-term liabilities.

\*\*Building and construction contractors and electrical con-

tractors do not have inventories in the credit sense of the term. They only carry such materials as lumber, bricks, tile, cement, structural steel, and building equipment to complete jobs on which they are working. Electrical contractors carry electrical equipment and supplies to complete particular jobs on which they are working. Concerns operating in these lines generally

have no customary selling terms, each contract being a special job for which individual terms are arranged.

†Job printers do not have inventories in the credit sense of the term. They only carry current supplies such as paper, ink, binding materials, and lead for type-setting.

## DEFINITIONS OF TERMS

**THE RATIOS**—The data used are based upon a representative sampling with a tangible net worth which only occasionally is below \$50,000. . . . The center figure for each of the twelve lines is the median. The other two figures in each line are quartiles; for each ratio they indicate the upper and lower limits of the experiences of that half of the concerns whose ratios are nearest to the median. When any figures are listed in order according to their size, the median is the middle figure (same number of items from the top and the bottom) and the quartiles are the figures that are located one-quarter and three-quarters down the list.

**COLLECTION PERIOD**—The number of days that the total of trade accounts and notes receivable (including assigned accounts and discounted notes, if any) less reserves for bad debts, represents when compared with the annual net credit sales. Formula—divide the annual net credit sales by 365 days to obtain the average credit sales per day. Then divide the total of accounts and notes receivable (plus any discounted notes receivable) by the average credit sales per day to obtain the average collection period.

**CURRENT ASSETS**—Total of cash, accounts and notes receivable for the sale of merchandise in regular trade quarters less any reserves for bad debts, advances on merchandise, inventory

less any reserves, listed securities when not in excess of market, State and municipal bonds not in excess of market, and United States Government securities.

**CURRENT DEBT**—Total of all liabilities due within one year from statement date including current payments on serial notes, mortgages, debentures, or other funded debts. This item also includes current reserves such as gross reserves for Federal income and excess profits taxes, reserves for contingencies set up for specific purposes, but does not include reserves for depreciation.

**FIXED ASSETS**—The sum of the cost value of land and the depreciated book values of buildings, leasehold improvements, fixtures, furniture, machinery, tools, and equipment.

**FUNDED DEBT**—Mortgages, bonds, debentures, gold notes, serial notes, or other obligations with maturity of more than one year from the statement date.

**INVENTORY**—The sum of raw material, material in process, and finished merchandise. It does not include supplies.

**NET PROFITS**—Profit after full depreciation on buildings, machinery, equipment, furniture, and other assets of a fixed nature; after reserves for Federal income and excess profit taxes; after reduction in the value of inventory to cost or market, whichever is lower, after charge-offs for bad debts; after mis-

cellaneous reserves and adjustments; but before dividends or withdrawals.

**NET SALES**—The dollar volume of business transacted for 365 days net after deductions for returns, allowances, and discounts from gross sales.

**NET SALES TO INVENTORY**—The quotient obtained by dividing the annual net sales by the statement inventory. This quotient does not represent the actual physical turnover which would be determined by reducing the annual net sales to the cost of goods sold, and then dividing the resulting figure by the statement inventory.

**NET WORKING CAPITAL**—The excess of the current assets over the current debt.

**TANGIBLE NET WORTH**—The sum of all outstanding preferred or preference stocks (if any) and outstanding common stocks, surplus, and undivided profits, less any intangible items in the assets, such as good-will, trade-marks, patents, copyrights, leaseholds, mailing lists, treasury stock, organization expenses, and underwriting discounts and expenses.

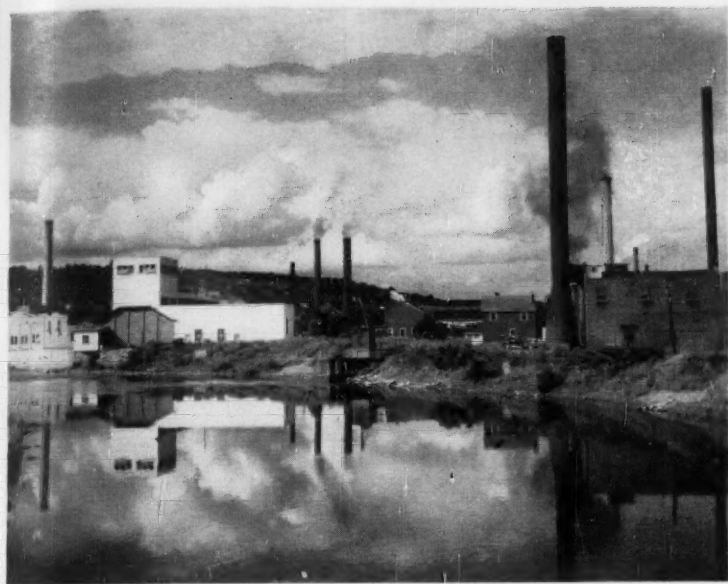
**TURNOVER OF TANGIBLE NET WORTH**—The quotient obtained by dividing annual net sales by tangible net worth.

**TURNOVER OF NET WORKING CAPITAL**—The quotient obtained by dividing annual net sales by net working capital.



## BUDGET: RED TAPE TO BLUEPRINT

Continued from page 47



DEVANEY PHOTOGRAPH

*Such peacefulness is seldom seen in factory districts. If the worries and fears of higher costs, increasing competition, and diminishing earnings are met with a planned program, industry and tranquillity should be able to live together.*

may suppose. As a matter of fact, your budget executive may sometimes find it necessary, and certainly advantageous, to prepare a sample of the correspondence between two executives in order to demonstrate the length they need go in order to properly co-ordinate their respective plans. In this way he is best able to demonstrate procedures which common sense soon should demonstrate to be logical and orderly. This should only have to be done once, of course. The self-evident advantages to be gained therefrom should soon cause the affected executives to work in accordance with the system. Naturally, this interrelationship should be carefully noted in a top-management approved budgetary procedures manual.

If the time-table implied by this paper appears to constitute a rather hasty approach to the establishment of a budget system, keep in mind that a good installation is most likely to be the one where the confidence of top executives is quickly won through a demonstration of factually supported, closely co-ordinated top level plans put to paper.

Once having started the ball rolling in the marketing department, the budget executive should then turn his attention to such activities as research and development, and overhead for such activities as general sales, and plant administra-

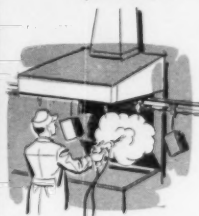
tion. Much of the opportunity for reducing the company's break-even point is to be found in a close examination of the expenses more frequently accepted as being fixed. Much of the critical initiating period is usually well spent in such areas as these, since they are usually of interest to top officials and by proximity alone provide activities where top management can most easily watch the budget idea at work. It is, in fact, in these areas where costs must be geared to programs which, when once adopted, usually remain fixed for the period of at least a year.

Moving over to manufacturing operations the aim should be, as it was in the case of the marketing department, to demonstrate to each executive how the plans of the division of the company which interests him most result in activities which are inextricably interwoven in the financial fabric of the company. These should be a constant reference to how the plans of the manufacturing group are as much dependent upon the company's financial condition as they are an influence upon it.

In the manufacturing department, however, there is usually one great difference—frankly, this cannot always be termed an advantage. The manufacturing group is usually comprised of people who, from top

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production executive down to foreman, are already using certain cost control tools. If it is hard to sell someone a new tool, it is doubly hard to sell him out of the old one. As a matter of fact, it would be wrong for your budget man to attempt this.

### Correct Approach

To sell the budget system successfully it is up to the budget executive to point out tactfully how the existing system may have to be modified so that it will lend itself to a completely co-ordinated system of control. The word "modify" is used advisedly, for much resistance to anything new can be swept aside if an earnest effort is made either to use the tools already in existence or, at least, to modify them.

Only when the company's operating plan has been based on a program of constructive analysis can that company feel assured that it has planned itself into the best competitive position possible. To accomplish this the manufacturing executives, including the foremen, plant managers, and service department heads, usually have to be conditioned to taking a fresh viewpoint and making a critical examination of the operations under their respective control. Just because "we did it that way before" will not do. While some resistance is usually met at first, the idea of a fresh look, if handled tactfully from the top down, can catch on.

The budget salesman's opportunity in selling the manufacturing department is usually to be found in the oft-repeated complaint that there never has been an estimate of sales (and consequently, produc-



"And, of course, to-day you're entitled to the customary 'last-day' free lunch—anything you want to order, Wamsly?"

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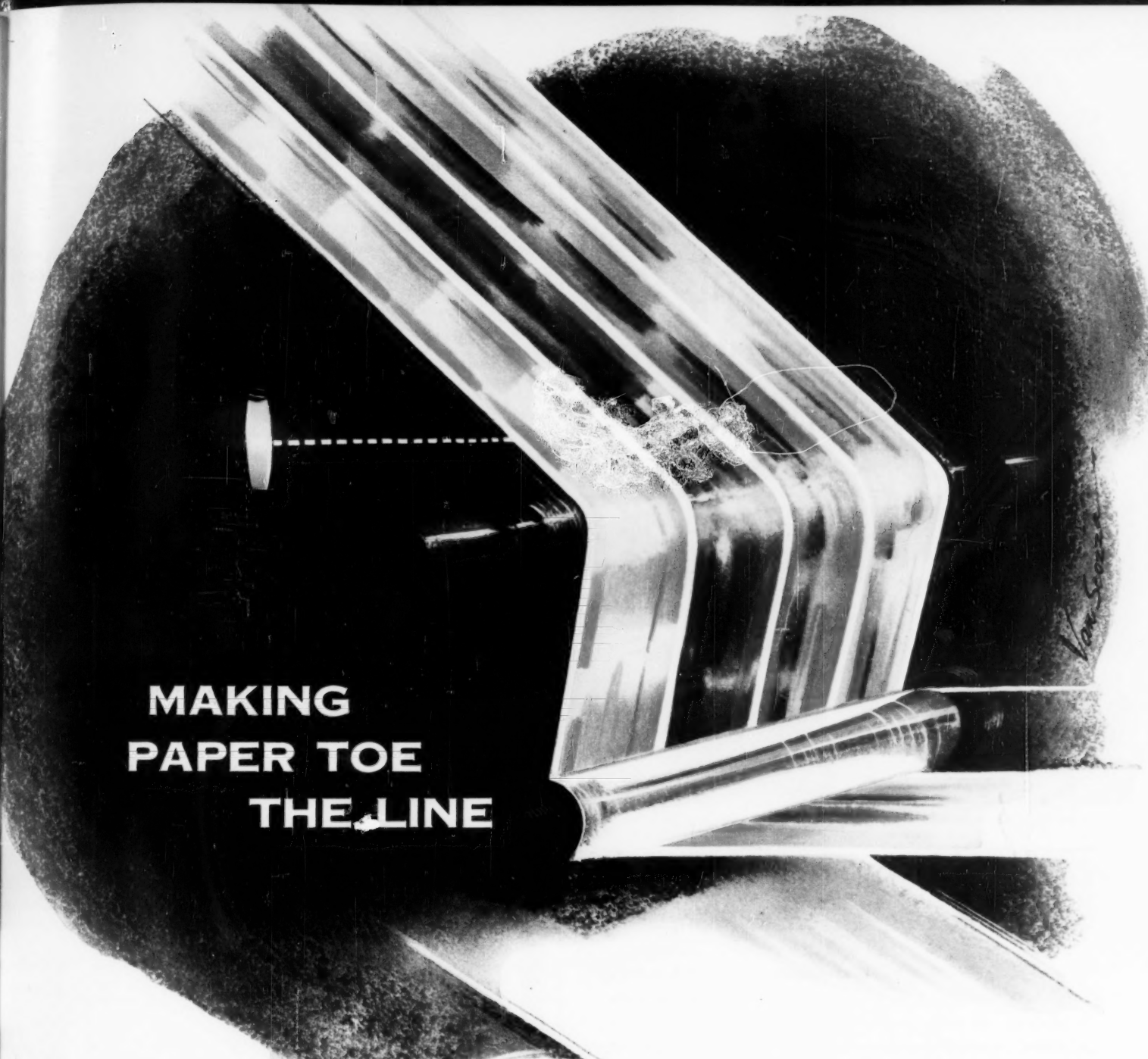
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tion) which would last for more than a month, or two at best. The objective here, of course, is first to win their confidence with proof that the marketing department has this time—through the devotion of greater effort, better co-ordination, and a real support of plans submitted—put together a selling plan in which the manufacturing people can have confidence.

### Assurance Needed

The manufacturing department should be assured that the sales plan will be reviewed by general management at least once each quarter in the light of changing conditions. With this start it is possible to ask confidently that the manufacturing officials set operational budgets which will meet the level of operations planned for a substantial portion of the coming business period.

In the last analysis, the over-all objective of a budget system is to exercise control over operations. This, eventually, can only be possible in manufacturing operations through the establishment of standards of performance for the use of

material, labor, and facilities. However, it will soon defeat the initial purpose of successfully selling the budget system to management if a great deal of time is spent during the first year or two developing operating standards at factory, department level. Consequently, early attention is usually most profitably devoted to those areas where programmed actions based on the efficient utilization of the company's working force (for example, overhead functions such as maintenance, power, plant, transportation, and the like) can be brought under improved control.

It is suggested that the earliest stages of budgeting deal with planned costs rather than with an intricate system of flexible budgeting. The highly mechanized industry of to-day with its hard-to-replace service and productive skills is developing, more and more, costs that do not readily give with volume changes. With this thought in mind, the introduction of flexible budgeting, where it may be applicable, can be reserved for future periods when the operating executives affected will have had the

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opportunity to appraise the applicability of the budget principle. Under to-day's artificially "fixed" conditions, largely dictated by a tight labor market, the manufacturing division has the responsibility of securing the optimum balance between costs and productivity.

However, it has not been the intention of the writer to support any particular type of a budget system. It has been the intention, rather, to stress matters of vital concern to budget introduction not ordinarily found in text books on budgetary procedure; matters which concern managements faced with the problem of either introducing a budget system or reviving an interest in one.

### Basic Rules

In summary, there are ten cardinal rules worth keeping in mind when yours is the problem of selling the budget principle:

1. Determine first the purpose which the budget system is to serve.

2. Plan the installation in a way which will quickly win co-operation of top management.

3. Make certain that all plans which are to become the actual support for budgets are expressed in writing and approved through appropriate channels.

4. Make the best use of financial and statistical information already available before arranging for the assembly of further data.

5. Wherever possible make reports self-analytical. This will encourage analysis and follow-up action to be performed by those charged with the responsibility for the function in question. All too often is this left entirely to accounting or budget personnel who neither have the responsibility nor the authority for making opera-

tional changes and, consequently, they do not get done in time.

6. Be alert to changing conditions so that budget revisions can be made promptly. Nothing will cause so rapid a loss of interest in the budget as to permit it to go stale.

7. Submit the budget procedure to a manual as soon as it is possible. Write up the portions of the budget mechanics as soon as a particular procedure has passed through the "pilot run" stage.

8. Keep the system simple.

### Choose Carefully

9. Your budget executive may not, at first, find himself a welcome member of the business family. Success in the budget installation will largely depend on the degree of tact and diplomacy exercised by the budget executive in offering his counsel and guidance to management. Choose this man carefully.

10. Do not ever be discouraged. Chances are that the co-operation and enthusiasm from a division head or line executive may have been thought won only to find that some time later, because of some kink in the system, his enthusiasm has waned. The only solution is to sell him again.

The success of the budget system, like all systems, is entirely dependent upon the people who use it. Sell your management men on the proper use of the budget and it should develop into a tool which will help them to perfect their managerial technique. However, one thing is certain (have your personnel manager take note): Selling the budget is not an easy task; it takes a vast amount of patience, hard work, and determination.

THE END

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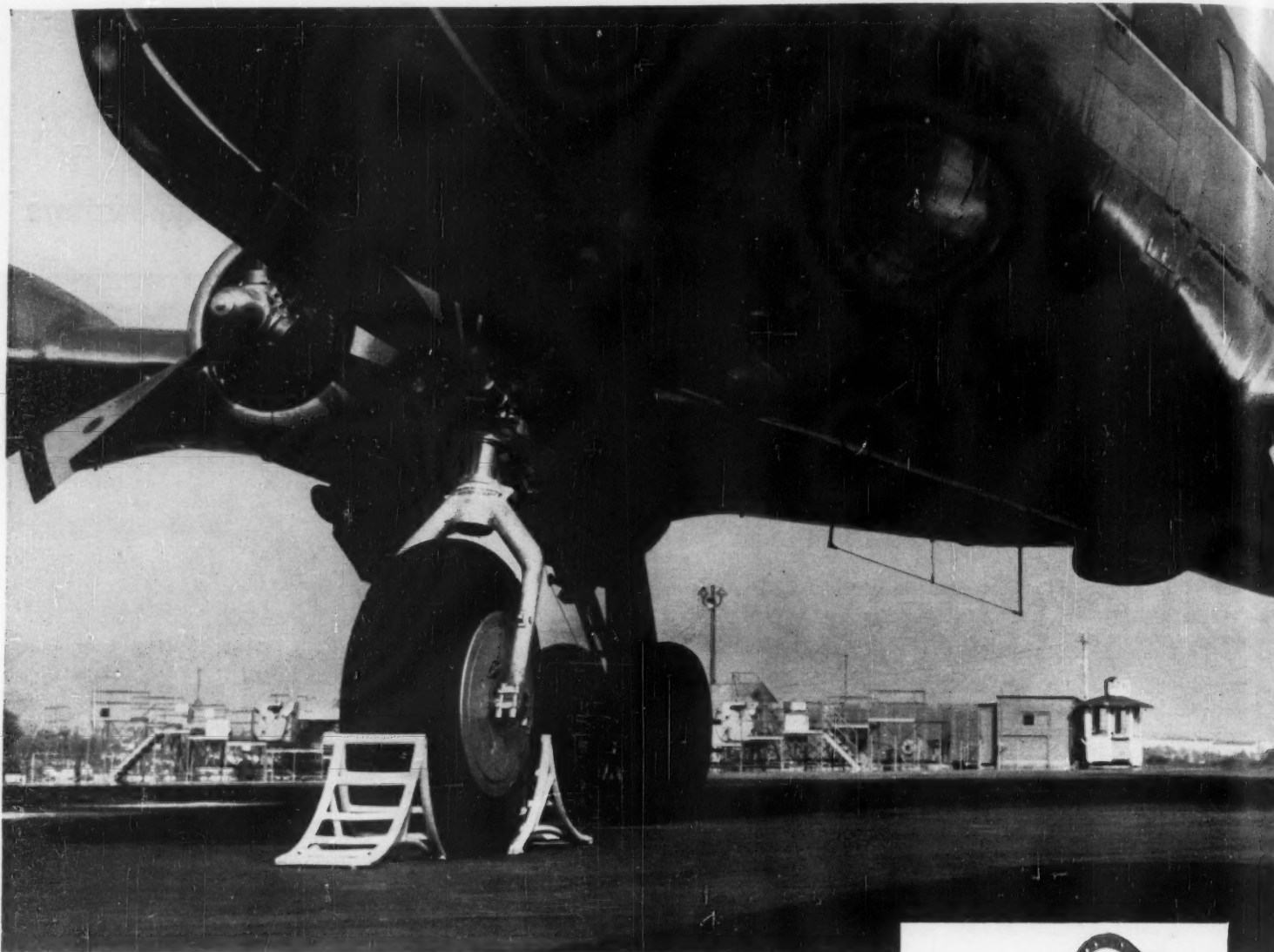
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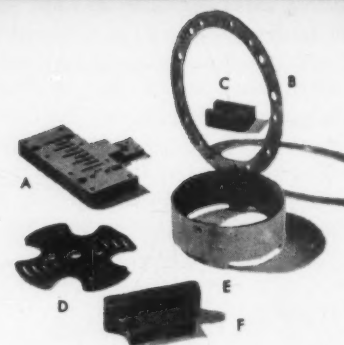
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# **SYNTHANE**

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DEVANEY PHOTOGRAPH

# The Trend of BUSINESS

production  
prices . .  
trade . .  
finance .

*Industrial production held at a high and steady rate, only 4 per cent below the peacetime peak achieved in March of this year. Unemployment reached a new peacetime low as the labor force decreased somewhat. Prices were steady to slightly lower as foods prices dipped seasonally. Following the cold spell in early November, retail sales picked up noticeably and registered moderate rises over a year ago. Consumer credit outstanding hovered near the September all-time high of \$27.6 billion.*

THE output of goods in the early part of November dipped slightly from the steady level of the preceding two months. As measured by the Federal Reserve Board's index, industrial production in October stood at 232 (1935-1939=100). This was unchanged from September and 1 per cent above a year ago.

Manufacturing output rose slightly from September to October as the output of durable goods increased 2 per cent, offsetting a fractional decline in non-durable goods production. Mineral production in September was 7 per cent below a month ago and 1 per cent below the corresponding year-ago level.

Current estimates of defense spending for the fiscal year 1954 (July 1, 1953 through June 30, 1954) were between \$42 and \$43 billion. This was approximately 3 per cent below the peak level of defense spending in fiscal 1953. Defense Department officials emphasized the levelling-off tendency in spending and anticipated that armament expenditures would remain at about \$40 billion for the next two or three years. This figure represents 11 per cent of the nation's output at current rates. Some economists estimated that the eventual floor of defense spending might be \$30 billion, about 8 per cent of the current gross national product.

Steel production in October and early Novem-

ber was somewhat below the level of a year ago when steelmen were operating at 106 per cent of capacity to overcome the losses incurred during the strike in the summer of 1952. Production in October was estimated at 9.5 million tons, 3 per cent below a year ago, but 6 per cent above a month ago. Steel order cancellations continued to taper off and many steelmen were more optimistic than they had been a month ago.

Automobile output in October was estimated at 622,730 vehicles. This was 12 per cent above a month ago and 10 per cent above a year ago. The increase over a month ago was largely a result of the completion of model changeovers. While there was some talk of production cutbacks to prevent price cutting, one of the leading manufacturers announced its intention to operate at full schedule and other automobile makers were quick to follow its example.

Electric power production in October and early November rose seasonally and was 8 per cent above a year ago. The greatest year-to-year increases in output were noted in the Southeast and the Pacific Northwest. However, at the same time last year, energy generated in the Pacific Northwest was reduced noticeably because of water shortages.

The warm weather in October was more favorable for mining operations than at the same

time last year; bituminous coal production was estimated at 46.4 million tons. This was 23 per cent above a year ago and 25 per cent above the preceding month. Crude oil producers continued their efforts to pare stocks and production was 2 per cent below a month ago and 8 per cent below a year ago.

With new orders approximately 8 per cent below a year ago, lumber production in October dipped 8 per cent below last year's level. While lumber shipments were approximately 5 per cent below a year ago, they rose seasonally to a level about 40 per cent above that in the preceding month.

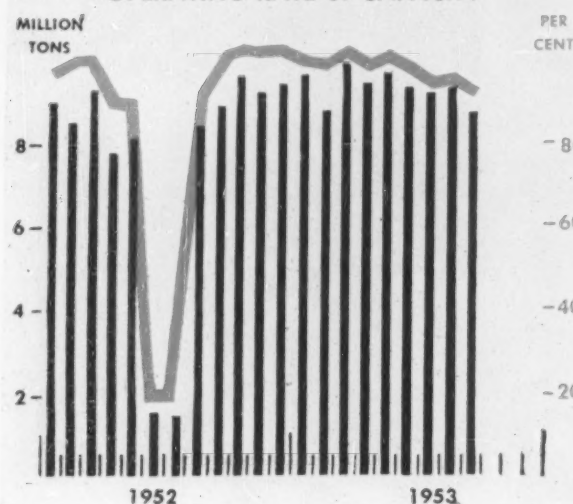
New orders for paperboard continued to exceed the comparable 1952 total by about 2 per cent. They were almost unchanged from the preceding month. However, in the latter part of October and early November, the backlog of orders for paperboard dipped 6 per cent below the year-ago figures as production was about 5 per cent higher than in 1952.

Furniture production continued to be above a year ago as shipments were much heavier than at the same time a year ago. As merchants expressed their confidence in future high retail sales by increasing orders at the show in High Point, N.C., some makers boosted output.

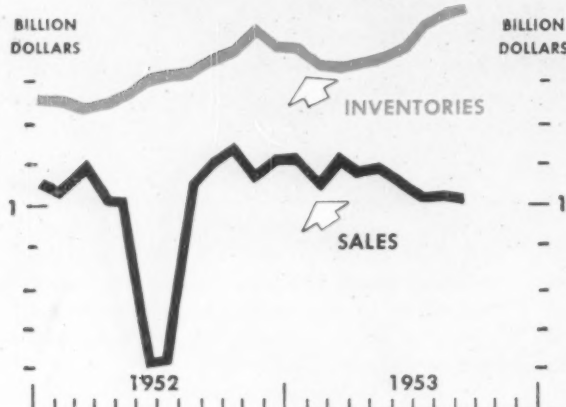
Most textile factories continued to be more

# The Trend of BUSINESS

## STEEL PRODUCTION and OPERATING RATE of CAPACITY



## IRON and STEEL INDUSTRIES SALES and INVENTORIES



## PRIMARY METAL INDUSTRIES NEW ORDERS and UNFILLED ORDERS



active than at the same time a year ago. Orders for cotton and synthetic fabrics were more numerous than in the comparable 1952 period. Woolen and worsted mills produced slightly more than in 1952 although the increase was not as great as had been anticipated. Those plants which manufacture cloth combining wool with a synthetic fiber, reflected the greatest increases over the similar 1952 period.

New construction activity in October reached an all-time high for the month of October. Construction expenditures were estimated at \$3.2 billion; this was 4 per cent above a year ago and 2 per cent below a month ago. The month-to-month decrease was less than is customary. While private residential building expenditures, at \$1.0 billion, were 1 per cent below a year ago, non-residential construction, valued at \$500 million, was 17 per cent higher than in 1952.

That spending by private industrial firms would remain high next year was reflected in business expansion plans. Plant and equipment expenditures for 1954 were expected to be only 4 per cent below the all-time high of \$27.8 billion for this year.

**Labor and Income** Employment in October held close to the September level; estimated at 62.2 million, it was fractionally above 1952. Unemployment dropped to a new peacetime low of 1,162,000, down from the September figure of 1,246,000. The jobless continued to represent less than 2 per cent of the total civilian labor force.

Although unemployment was at its lowest level in over eight years, there were numerous reports of factory layoffs and increased initial claims for unemployment compensation. It should be remembered, however, that often workers file for unemployment benefits even though they are subject to recall within 30 days. If workers are laid off with the promise of recall, they are not listed as unemployed by the Census Bureau. Furthermore, the civilian labor force has diminished somewhat in the last four months, from 64.7 in June and July to 63.4 in October. The conflicting reports of less unemployment and more layoffs can be explained in that some of those workers laid off, particularly housewives and students, have not sought new jobs.

The bulk of the layoffs which occurred in October were of a seasonal and temporary nature. Many workers were temporarily unemployed because of model changeovers, inventory-taking and normal seasonal lulls in some indus-

*While steel mill operating rates have been gathering a fair share of the headlines, it is often overlooked that actual output is close to the March all-time high. Despite the widening gap between sales and inventories, accumulation appears to have eased recently. Order backlogs have declined in the past year but it should be noted that some of these orders have been on the books since the start of the Korean War. New orders have been fairly constant.*

tries such as shoes, textiles and food processing. Apparel employment increased seasonally.

Farm employment in October was estimated at 7.2 million. The year-ago and month-ago figure had been 7.3 million. This marked the second consecutive month in which farm employment was below a year ago.

Personal income in September was estimated at \$285.8 billion. While this was 1 per cent below the all-time high in July 1953, it was 3 per cent above a year ago. The largest month-to-month drop occurred in wage and salary disbursements; they were 2 per cent below the preceding month's level. Less overtime pay was the chief reason for the lowered payrolls.

The average weekly earnings of manufacturing workers in September amounted to \$70.4. This was 2 per cent less than in the preceding month, but 1 per cent above a year ago. The average workweek was 39.6 hours as compared with 40.5 hours in the previous month and 41.2 hours at the same time a year ago. However, hourly earnings were at an all-time high of \$1.70 an hour, about 1 per cent above the preceding month and 5 per cent above the comparable 1952 period.

Agricultural income was estimated at an annual rate of \$16.2 billion. This was down slightly from the preceding month and was 22 per cent below a year ago. Total cash receipts from farm marketings for the year 1953 were forecast at \$31.2 billion. This is 4 per cent below 1952 receipts and 6 per cent below the all-time high reached in 1951. Despite a larger volume of marketings, this year, lower farm prices, particularly for livestock, have resulted in the reduced receipts. It was thought that the farmers' net

## Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO
Steel Ingot Production Ten Thousand Tons	206	208	221
Bituminous Coal Mined Hundred Thousand Tons	88	88	106
Automobile Production Thousand Cars and Trucks	112	136	129
Electric Power Output Ten Million K.W. Hours	846	840	788
Freight Carloadings Thousand Cars	727	748	820
Department Store Sales Index Number (1947-1949=100)	133	122	131
Wholesale Prices Index Number (1947-1949=100)	110	110	110
Bank Clearings Hundred Million Dollars	1008	704	1018
Money in Circulation Hundred Million Dollars	305	304	299
Business Failures Number of Failures	155	207	148

\*Steel, automobile, price and failures data are for the third week of November; all other figures are for the second week of November.  
Sources: Amer. Iron & Steel Inst.; U. S. Bureau of Mines; Automotive News; Edison Electric Inst.; Amer. Assoc. of Railroads; U. S. Bureau of Labor Statistics; DUN & BRADSTREET, INC.



income in 1953 might amount to \$12.5 billion, 4 per cent below a year ago.

**Trade** Retail sales in October, estimated at \$15.0 billion, were 1 per cent above a year ago and 6 per cent above a month ago. With the arrival of colder weather in early November there was a noticeable increase in the consumer interest in winter specialties, and spending reflected increases over 1952.

The prevalence of above-normal temperatures in October was a noticeable deterrent to retail sales. Among retailers reporting a sales decline from a year ago, those selling apparel had the largest decreases. The consumer interest in winter coats and suits was unusually sluggish; in an effort to quicken the movement of apparel stocks, many merchants featured special promotions on Election Day and Armistice Day.

Even though apparel sales were somewhat slow, over-all soft goods volume in October and the early part of November attracted a greater share of the consumer's dollar than in the previous year. While hard goods sales were fractionally above a year ago, there was a marked decline in the call for new cars.

Consumer credit outstanding at the end of September was estimated at \$27.6 billion, an all-time high. While this was less than 1 per cent above the preceding month, it was 18 per cent above a year ago. The month-to-month increase was less than in previous months when consumer credit rose from \$20.9 billion in April 1952, to the present all-time high.

Consumer buying of new cars was only slightly above that in the previous year and was moderately below the preceding month. Many prospective buyers delayed buying as they awaited the 1954 models. Used car volume was below a year ago and somewhat higher than in the previous month. Price-cutting and discounting were frequent for both new and used models; dealers made strenuous efforts to lower their stocks in preparation for the new models.

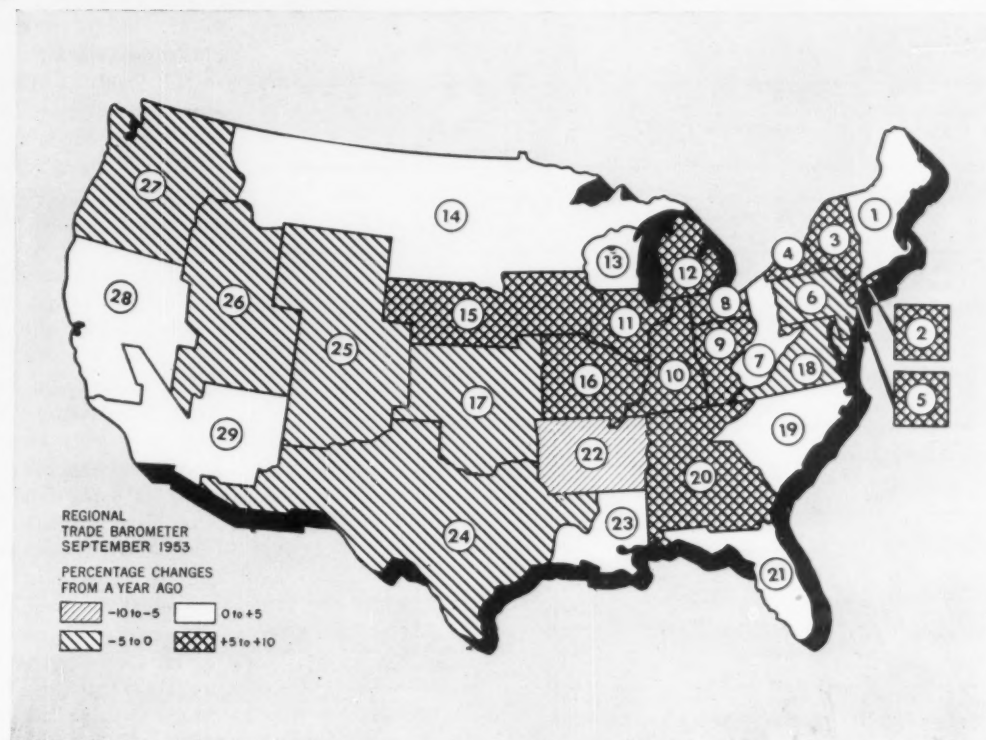
Retail sales volume in furniture was almost unchanged from a year ago and a month ago. The warm October weather did little to stimulate decorating urges and volume in the smaller items of house furnishings was below a year ago. Response to curtain, drapery and carpet promotions was for the most part apathetic.

Food volume was moderately above a year ago and seasonally above the preceding month. In this line too, the heat acted as a deterrent to the purchases of higher priced and heartier food items. Housewives continued to express a preference for frozen foods and easy-to-prepare items. Meat purchases were considerably higher than a year ago in terms of units while dollar volume was down somewhat.

Apparel volume in October was below a year ago but quickly rose above the similar 1952 period in early November as the temperatures dipped sharply. In greatest demand were the

## Regional Trade Barometers

(1947-1949=100)



	% Change from				% Change from		
	Sept. 1953	Sept. 1952	Aug. 1953		Sept. 1953	Sept. 1952	Aug. 1953
United States.....	131.6	+3.6	-1.6	15. Iowa & Nebraska.....	117.3	+5.2	-0.9
1. New England.....	117.2	+4.0	+2.1	16. St. Louis.....	127.9	+8.7	+2.5
2. New York City.....	123.9	+5.8	+3.9	17. Kansas City.....	12.9	-2.2	-3.4
3. Albany, Utica & Syracuse.....	132.8	+5.4	+4.2	18. Maryland & Virginia.....	126.3	-9.5	-4.3
4. Buffalo & Rochester.....	134.7	+6.7	-0.4	19. North & South Carolina.....	133.0	+0.3	-4.1
5. Northern New Jersey.....	131.9	+5.2	+2.0	20. Atlanta & Birmingham.....	139.0	+5.1	-0.4
6. Philadelphia.....	112.0	-1.5	-11.7	21. Florida.....	142.9	+2.8	-4.3
7. Pittsburgh.....	138.9	+3.8	-2.5	22. Memphis.....	120.7	-6.7	-6.4
8. Cleveland.....	138.3	+8.0	-4.9	23. New Orleans.....	132.1	+2.1	-2.4
9. Cincinnati & Columbus.....	130.3	+5.2	-6.1	24. Texas.....	136.3	-0.8	-2.9
10. Indianapolis & Louisville.....	136.7	+8.2	-3.3	25. Denver.....	121.3	-2.9	-5.9
11. Chicago.....	123.8	+6.8	-2.4	26. Salt Lake City.....	120.4	-3.8	-2.4
12. Detroit.....	122.5	+6.9	-6.5	27. Portland & Seattle.....	119.0	-3.3	-1.5
13. Milwaukee.....	126.0	+1.8	-5.3	28. San Francisco.....	123.3	+0.5	+2.6
14. Minneapolis & St. Paul.....	114.2	+3.2	-4.8	29. Los Angeles.....	133.4	+2.1	+2.1

more dressy items of clothing for both men and women. Sportswear sales slackened somewhat in October but rose again in November.

Wholesale volume in October was below both a year ago and a month ago. With the reduced level of retail sales, merchants were more cautious in placing orders. Apparel and textile sales were notably below a year ago and a month ago with a few exceptions. Sales in apparel lines for cruise and resort wear were markedly above the similar 1952 period. Woolen sales lagged while there was an increase in the call for cotton and synthetic fabrics.

Wholesale volume in durable goods was moderately above a year ago. The greatest year-to-year increase was reflected among automotive parts and accessories dealers. Building material wholesalers reported slight sales decreases from both a year ago and a month ago.

**Barometers** Continuing the September decline, the DUN'S REVIEW Regional Trade Barometer for the United States (preliminary) experienced a slight decrease in October and stood at 128.3 (1947-1949=100). This was 2 per cent above a year ago and 3 per cent below a month ago. The barometers are adjusted for seasonal variation.

The final United States Barometer for September stood at 131.6, 4 per cent above a year ago and 2 per cent below a month ago. This was in contrast with recent months; the cumulative barometer for the first nine months of 1953 was 7 per cent above the year-ago level.

All but eight of the 29 barometers were above a year ago. The St. Louis Region (16) reflected the greatest increase from last year, 9 per cent. Contrastingly, the Memphis Region (22) re-

# Compass Points OF BUSINESS

Compass Point	Year	June	July	Aug.	Sept.	Oct.
EMPLOYMENT, AGRICULTURAL..... <i>Million persons</i>	1951	8.0	7.9	7.7	7.5	7.7
	1952	8.2	7.6	7.0	7.5	7.3
	1953	7.9	7.6	7.3	7.3	7.2
EMPLOYMENT, NON-AGRICULTURAL... <i>Million persons</i>	1951	53.8	54.6	54.9	54.1	54.2
	1952	54.4	54.6	55.4	54.7	54.6
	1953	55.2	55.5	56.1	55.0	55.1
UNEMPLOYMENT..... <i>Million persons</i>	1951	2.0	1.9	1.6	1.6	1.6
	1952	1.8	1.9	1.6	1.4	1.3
	1953	1.6	1.6	1.2	1.2	1.2
FEDERAL RECEIPTS..... <i>Billion dollars</i>	1951	7.1	2.6	3.6	6.2	2.6
	1952	9.8	3.3	4.1	6.6	3.1
	1953	9.7	3.3	4.6	6.0	2.7
FEDERAL EXPENDITURES..... <i>Billion dollars</i>	1951	6.0	4.7	5.1	5.2	5.8
	1952	6.9	6.7	5.0	6.1	6.4
	1953	8.0	6.1	6.0	6.1	5.5
FARM INCOME..... <i>Billion dollars</i>	1951	2.2	2.6	2.9	3.3	4.2
	1952	2.3	2.6	2.9	3.5	4.0
	1953	2.0	2.4	2.5	3.3	3.8
CONSUMER'S CREDIT OUTSTANDING... <i>Billion dollars</i>	1951	20.3	20.0	20.3	20.5	20.6
	1952	22.4	22.8	23.0	23.4	24.1
	1953	27.1	27.2	27.4	27.6	27.7
WEEKLY EARNINGS OF INDUSTRIAL WORKERS <i>Dollars</i>	1951	64.71	63.92	64.08	65.37	65.21
	1952	66.83	65.44	67.23	69.63	70.38
	1953	71.63	71.51	71.69	71.02	71.73
GROSS HOURLY EARNINGS OF INDUSTRIAL WORKERS <i>Dollars</i>	1951	1.59	1.59	1.59	1.61	1.61
	1952	1.65	1.64	1.66	1.69	1.70
	1953	1.76	1.77	1.77	1.78	1.78
AVERAGE WEEKLY HOURS OF INDUSTRIAL WORKERS <i>Hours</i>	1951	40.5	40.5	41.2	41.0	41.3
	1952	40.7	40.2	40.3	40.6	40.5
	1953	40.7	40.4	40.5	40.3	39.9
MANUFACTURERS' SALES..... <i>Billion dollars</i>	1951	22.1	20.0	22.7	21.8	24.3
	1952	21.6	20.1	22.7	24.7	26.5
	1953	25.0	24.5	25.2	26.0	27.8
WHOLESALESALESALES..... <i>Billion dollars</i>	1951	8.3	8.1	9.2	9.0	10.3
	1952	8.2	8.6	8.7	9.5	10.4
	1953	8.7	8.9	8.7	9.4	10.3
RETAILERS' SALES..... <i>Billion dollars</i>	1951	13.3	12.4	13.3	13.1	13.9
	1952	13.8	13.4	13.4	13.6	14.8
	1953	14.6	14.4	14.2	14.2	15.0
ELECTRIC POWER PRODUCTION..... <i>Billion kw h</i>	1951	35.0	35.4	37.5	35.3	37.8
	1952	36.1	37.0	39.8	38.8	40.5
	1953	42.7	43.9	44.5	42.9	43.7
BUILDING PERMITS, 120 CITIES..... <i>Million dollars</i>	1951	299	333	354	317	296
	1952	311	356	312	304	343
	1953	364	430	331	318	332
COMMERCIAL AND INDUSTRIAL FAILURES <i>Number</i>	1951	699	665	678	620	643
	1952	671	580	594	539	639
	1953	817	724	700	686	840
LIABILITIES OF FAILURES..... <i>Million dollars</i>	1951	22.8	21.1	26.4	26.6	29.7
	1952	21.2	22.8	16.3	20.1	35.0
	1953	32.4	41.3	28.5	33.8	37.1

\*Adjusted for seasonal changes.

These figures bring up to date some of the series in "The Compass Points of Business," quarterly supplement to the November issue. The next supplement will appear in February.

## The Trend of BUSINESS

continued

flected the greatest decrease from the 1952 level, 7 per cent. Generally, the barometers for the Regions in the East and the Midwest reflected larger increases over a year ago than did those for the other areas.

The barometer for the Philadelphia Region (6) reflected the greatest decrease from a month ago, 12 per cent. In the previous month, spending had been higher as shoppers sought to avoid the sales tax which was to go into effect September 1st.

The regions which reflected the larger increases over a month ago were New York City (2) and Albany, Utica and Syracuse (3) with a rise of 4 per cent. The August heat wave had had a noticeable effect on retail sales in those areas and the September increase was partly a readjustment in sales as the temperatures dropped.

The Los Angeles Region (29) and the Detroit Region (12) continued to reflect the greatest cumulative increases over a year ago, 15 and 17 per cent, respectively. The agricultural regions continued to reflect the smallest cumulative in-

crease, although not one of the 29 regions reflected a decrease from 1952, taking the first nine months of 1953 as a whole.

The Florida Region (21) had the highest barometer, 142.9, and the Philadelphia Region (6) had the lowest barometer, 112.0.

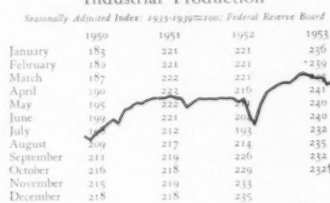
**Prices** Reflecting relative firmness of prices in October and in early part of November, the DUN & BRADSTREET Daily Commodity Index climbed from 272.26 on October 23 to 272.88 (1930-1932=100) on November 20. The prices for most of the commodities were unusually steady during the month. Grain prices rose somewhat while most livestock prices declined.

Among metals and metal products most prices were steady. Steel scrap quotations, which had dropped in the preceding month, recovered to a level 14 per cent above that in early October.

Cotton and wool prices appeared to stabilize. Some price increases were announced for synthetic fibers.

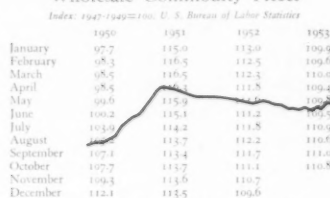
Prices received by farmers in October dipped 2 per cent; the in-

### Industrial Production



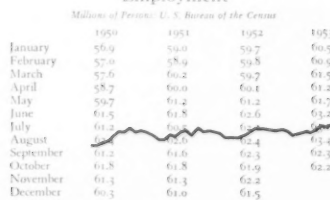
† Approximation; figure from quoted source not available.

### Wholesale Commodity Prices



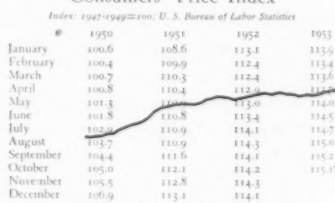
† Approximation; figure from quoted source not available.

### Employment



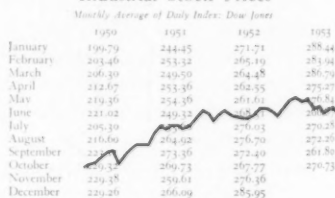
Includes all civilian workers.

### Consumers' Price Index



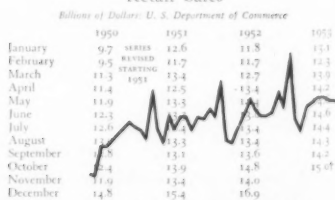
† Approximation; figure from quoted source not available.

### Industrial Stock Prices



Based on closing prices of 30 industrial stocks.

### Retail Sales

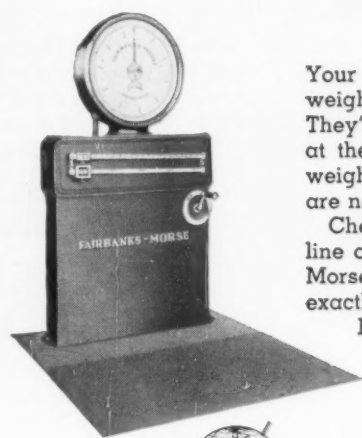


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in 3 to 5 days no  
matter where you are  
located in the U. S.**



**Funds continuously  
available for months  
or years without  
calls or renewals.**

## The Trend of BUSINESS

*continued*

dex stood at 250 (1910-1914=100). This was 11 per cent below a year ago. The parity ratio, reflecting the difference between the prices received and the prices paid by farmers, declined 1 point to 91. A year ago, the ratio had been 99.

Construction cost indexes rose from October to November as labor costs continued to mount. Average costs were up approximately 1 per cent in the month and were 4 per cent above a year ago.

Although quoted steel prices appeared to have firmed, there was price shading in other directions as some mills embarked on a policy of freight absorption for finished goods. Prices for other metals, such as copper, lead and zinc, were stable during the month. A more balanced relation between the foreign supply and demand for these metals was believed a reason for the firmness.

Many foreign firms have worked through their inventories of non-ferrous metals and are now in a position to buy these metals from sources which have been in competition with American producers. United States imports of copper in September were about one-half of the amount imported in January 1953.

Oil prices were generally unsteady in October; producers sometimes expressed concern over mounting stocks. A few refiners cut the price of gasoline, but the reduction was not industry wide. Major producers of bearing oil were watching the weather forecasts with a careful eye. If the Winter is colder than usual this year, the problem of heavy inventories may cease to exist. However, remembering last year's

### DAILY WHOLESALE PRICE INDEX

The index is prepared on the basis of daily spot closing prices of 30 primary commodities (1930-1932=100).

Week Ending	Mon.	Tues.	Wed.	Thurs.	Fri.
Nov. 20.	272.54	272.23	272.27	272.48	272.88
Nov. 13.	272.51	272.21	Hol.	272.42	272.27
Nov. 6.	271.74	Hol.	271.44	271.69	271.98
Oct. 30.	272.37	271.73	272.29	272.96	272.81
Oct. 23.	271.33	271.06	271.53	272.21	272.26

### WHOLESALE FOOD PRICE INDEX

The index is the sum total of the prices per pound of 31 foods in general use. It is not a cost-of-living index.

Latest Weeks	Year Ago	1953
Nov. 17. \$6.51	Nov. 18. \$6.27	High July 21... \$6.75
Nov. 10. 6.50	Nov. 11. 6.30	Low Feb. 3... 6.13
Nov. 3. 6.48	Nov. 4. 6.30	1952
Oct. 27. 6.54	Oct. 28. 6.33	High Aug. 26. \$6.70
Oct. 20. 6.57	Oct. 21. 6.34	Low Dec. 16... 6.11

## Superstitions



**...about raising an umbrella  
in the house?**

**Mr. Fuddy forgot himself.**

He opened his umbrella *before* stepping out into the rain. Bad luck overtook him when he closed it in the vestibule of his office. He slipped in the puddle left by the dripping umbrella.

Superstition or carelessness, the accident could have been avoided with **GRIPTEX**. The tiny abrasive particles of this Safety powder through spillage of water, oil or other liquids. Give firm, slip-resistant footing instantly. Just sprinkle it on slippery floor areas, on loading platforms and around machinery. **GRIPTEX** in heavy demand in commissaries, restaurants, public buildings. Use it on any type flooring.

Of course, **GRIPTEX** is only one of many **LEGGE** products designed to protect you against slippery floor accidents. Why not let us custom tailor a complete Safety Maintenance System to your needs? Write today for full details on **GRIPTEX** and our Free booklet, "Mr. Higby Learned about Floor Safety... the hard way!"

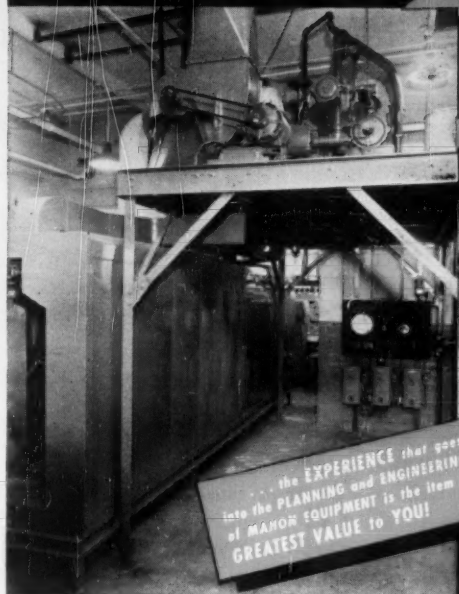
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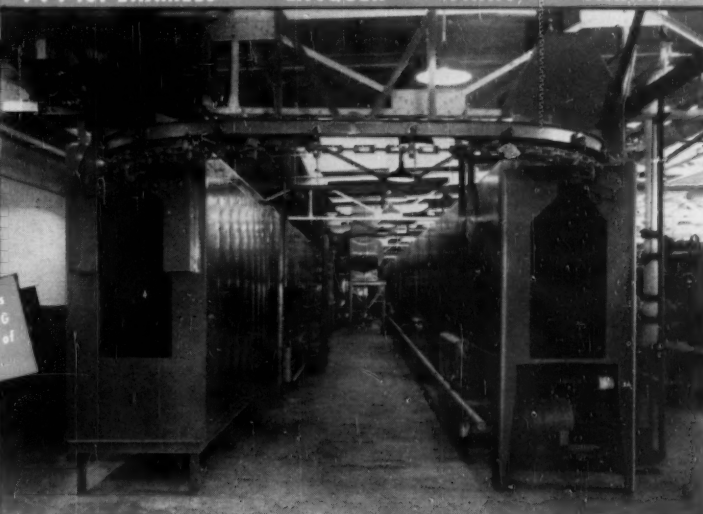


# COMPLETE *Finishing* SYSTEMS

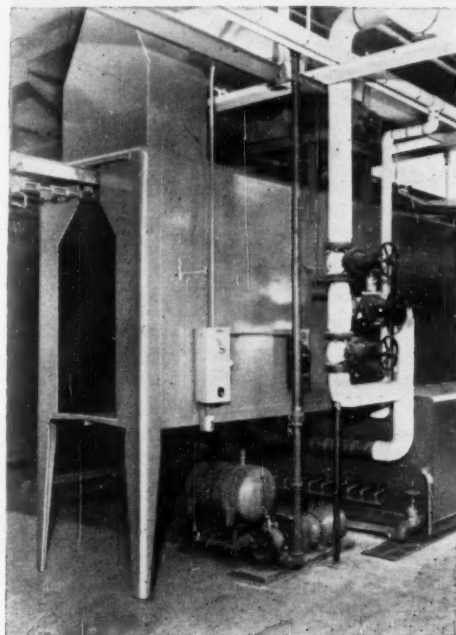
... for ENAMELS • LACQUER • PAINT • VARNISH



Mahon Low Temperature Finish Drying Oven at American-Standard. View shows Heating, Recirculating and Exhaust Equipment as well as the Control Cabinet Housing Temperature Controls, Recording Instruments and Safety Devices.



View of One of Two Complete Mahon Finishing Systems Installed in the Buffalo Stamping Plant of American-Standard. Metal Cleaning and Rust Proofing Machine and Dry-Off Oven are in the Foreground.



Exit End of Mahon Metal Cleaning and Rust Proofing Machine at American-Standard. Processing Solutions are Heated by Steam. Temperature Control is Automatic.

## HEATER PANELS at AMERICAN STANDARD are also FINISHED in MAHON EQUIPMENT!

Major elements of a second Complete Mahon Finishing System installed in the Buffalo Stamping Plant of American-Standard are illustrated here. This second system, like the other, is ultramodern in every respect. Parts are carried on a single conveyor which passes through a five-stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, two Conventional Type Hydro-Filter Spray Booths which are staggered right and left hand, for spraying opposite sides, and finally through a Low Temperature Finish Drying Oven. This is another typical Mahon Finishing System designed to do a specific job efficiently and economically. If you have a finishing problem, or are contemplating new finishing equipment, you will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements... better qualified to do the all-important planning, coordinating and engineering of equipment—which is the key to fine finishes at minimum cost. And, you will also find that Mahon equipment is built better for more economical operation over a longer period of time. Mahon's background history in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating and Spray Equipment for every conceivable product painted on a production basis. See Mahon's Insert in Sweet's Plant Engineering File, or write for Catalog A-654.

## THE R. C. MAHON COMPANY

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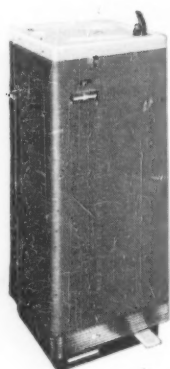
Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning, Pickling, and Rust Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems, and Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment for Aluminum and Magnesium, and other units of Special Production Equipment.

# MAHON

## Cool Drinking Water Means A More Efficient Office and Plant

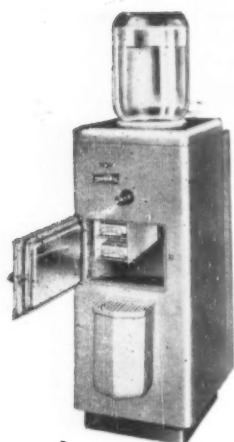


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**New Pressure-Balanced Models** provide step-saving water cooling service to quench thirst, relieve fatigue, and keep all your employees on their toes all year 'round. Look at all these outstanding Frigidaire features that mean so much in dependability, economy, and convenience! New instantaneous "flash cooling" chills only as water is used—lowers operating costs as much as 30%. All-electric toe-tip control activates bubbler. Also available with push button control, if desired.

Automatic regulator compensates instantly for all water pressure changes—no surging or spurting. Anti-splash top of easy-to-clean porcelain. Powered by famous Meter-Miser compressor, warranted for 5 full years. In 6, 12, 18-gallon-per-hour capacities.



**New Bottle-Type Models.** Executive Model has door with lock that conceals a refrigerated compartment. Freezes 2 Quickcube trays of ice. Cools quart bottles, up to 36 soft drinks, and other items. Also available without compartment. Powered by Meter-Miser compressor. Requires no plumbing; plug into any 115v. AC outlet. Call your Frigidaire Dealer today. Or write Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

## Frigidaire Water Coolers



BUILT AND BACKED BY GENERAL MOTORS

The most complete line of refrigeration and air conditioning products in the industry.

## The Trend of BUSINESS

*continued*

warm weather, many oilmen expressed uncertainty.

Following a drop of 7 per cent in cattle prices from September to October, there was considerable clamor from some cattle producers for beef price supports. However, the majority of the cattlemen continued to express preference for an uncontrolled market. Some observers thought that increased consumption would eventually raise prices.

**Finance** The supply of money continued to expand seasonally in October; by early November the volume of money in circulation was 2 per cent larger than a year ago. Bank loans to business expanded about 2 per cent in the month. This expansion however was somewhat less than is usual at this time of year.

Bank debits in October totalled \$150.0 billion. This was 1 per cent above a month ago and fractionally below a year ago.

Stock price averages in October continued to mount following their recovery from the Summer slump. From 271.02 on October 16, the Dow-Jones stock average inched upwards to 276.05 on November 20. The volume of shares traded on the New York Stock Exchange during October amounted to 25.7 million, slightly below the year ago volume of 26.0 million.

Interest rates remained relatively stable in October. However the rate on Treasury short-term offerings continued to ease.

Reflecting general confidence in fiscal stability, the \$2.5 billion Treasury offering of seven year-ten month bonds was one day. The issue had been oversubscribed by \$10 billion in that one day.

### BANK CLEARINGS (Thousands of Dollars)

	1953	1952	% Change
Total, 24 Cities.....	37,862,519	38,042,046	-2.8
New York.....	39,966,860	41,382,966	-3.4
Total 25 Cities.....	77,829,379	80,325,012	-3.1

### NEW BUSINESS INCORPORATIONS

Geographical Divisions.....	September 1953	September 1952	September 1951	Five Months 1953
New England.....	483	471	5,236	4,403
Middle Atlantic.....	2,246	2,456	24,994	23,861
East North Central.....	1,336	1,255	13,133	10,978
West North Central.....	368	319	3,866	3,185
South Atlantic.....	1,085	1,176	11,707	10,207
East South Central.....	240	216	2,291	2,014
West South Central.....	483	530	4,872	4,642
Mountain.....	329	289	3,177	2,737
Pacific.....	863	817	8,818	7,554
Total U.S.....	7,433	7,529	78,094	69,581



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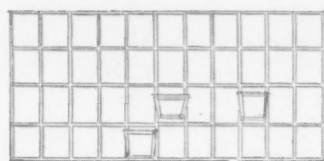
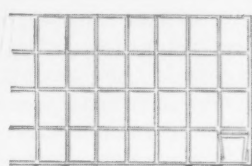
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Between the ceiling of your plant and a point seven feet above the floor there's a lot of *valuable* space. You heat it in winter, illuminate it, pay rent for it . . . but do you use it? Many companies lift, move and store materials more efficiently and at lower cost with Whiting overhead Trambeam.

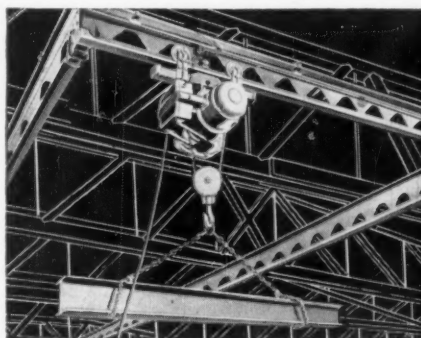
The aisles of your plant will be free of slow-moving, dangerous traffic; one man will move or stack heavier loads faster than three or four do now. Look into Whiting Trambeam Monorail and Crane Systems today . . . write for complete information.



**WHITING CORPORATION**

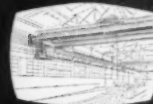
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Sales Offices and Distributors in all Principal Cities



**WHITING**  
**TRAMBEAM® OVERHEAD**  
**HANDLING SYSTEMS**

Overhead Traveling Electric Cranes



WHITING PRODUCTS HELP INDUSTRY  
TO PRODUCE MORE . . . FASTER!



The Trackmobile



Electric Chain Hoists

Whiting Corporation also manufactures Railroad and Aviation equipment, Swenson Chemical Processing equipment and Metal-working Machinery.



*Business Failures . . .*

Business failures climbed 22 per cent in October to 840, the largest toll in any month since May, 1950. One-third again as large as a year ago, casualties were the highest for any October since 1940, when 1,111 occurred.

According to DUN'S FAILURE INDEX, concerns failed at the rate of 39 for each 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*. The index projects monthly mortality to an annual rate and adjusts for seasonal variation. This October rate compares with 36 in the preceding month and 30 in the corresponding month a year ago. While this was the highest rate for any month since 1949, it remained far below that in October 1940 when 67 out of each 10,000 businesses succumbed.

The liabilities involved in October's failures rose about 10 per cent in the month to \$37,076,000; this was some 6 per cent higher than the losses a year ago. Losses were larger only twice

in the post-war period; in July of this year when liabilities amounted to \$39,830,000, and in March 1949 when they totalled \$37,188,000. Past comparisons are charted on the next page.

While there was a 3 per cent decline in the number of failures involving liabilities of \$100,000 or more, compared with a year ago, they were 51 per cent more numerous. Failures in all of the other size groups were more numerous than both a month ago and a year ago.

Enterprises less than five years old continued to comprise the bulk of the failures; this month they accounted for 60 per cent of them with a major portion in operation for three years or less. However, only 8 per cent of the businesses failing in October had been started in 1953.

Among the industry groups, manufacturing, retailing, and commercial service accounted entirely for the upturn in failures between September and October. Mortality in retail and service

## WHY BUSINESSES FAIL

Classification of Causes of BUSINESS FAILURES—All Lines of Business

Based on Opinions of Informed Creditors and information in Dun & Bradstreet's Credit Reports

Compiled by Griffith M. Jones

Assistant to the President, DUN &amp; BRADSTREET, INC.

THIRD QUARTER 1952		THIRD QUARTER 1953		YEAR ENDED Sept. 30, 1953				THIRD QUARTER 1952		THIRD QUARTER 1953		YEAR ENDED Sept. 30, 1953		
NO.	PER CENT	NO.	PER CENT	NO.	PER CENT	UNDERLYING CAUSES		APPARENT CAUSES		NO.	PER CENT	NO.	PER CENT	
84	4.9	103	4.9	421	5.1	Neglect:	Due to . . . . .	Bad Habits	15	0.9	39	1.9	130	1.6
								Poor Health	54	3.1	53	2.5	224	2.7
								Marital Difficulties	9	0.5	6	0.3	33	0.4
								Other	6	0.4	5	0.2	34	0.4
59	3.5	70	3.3	283	3.5	Fraud:	On the part of the principals, reflected by . . . . .	Misleading Name	2	0.1	—	—	4	0.1
								False Financial Statement	7	0.4	13	0.6	49	0.6
								Premeditated Overbuy	1	0.1	5	0.2	13	0.2
								Irregular Disposal of Assets	40	2.4	45	2.2	193	2.3
								Other	9	0.5	7	0.3	24	0.3
199	11.6	231	10.9	941	11.5	Lack of Experience in the Line	Evidenced by inability to avoid conditions which resulted in . . . . .	Inadequate Sales	849	49.6	1,059	50.2	4,091	49.8
198	11.6	252	11.9	895	10.9	Lack of Managerial Experience		Heavy Operating Expenses	168	9.8	138	6.5	629	7.7
307	17.9	380	18.0	398	17.1	Unbalanced Experience*		Receivables Difficulties	114	6.7	196	9.3	680	8.3
								Inventory Difficulties	180	10.5	195	9.2	778	9.5
								Excessive Fixed Assets	183	10.7	222	10.5	790	9.9
829	48.4	1,017	48.2	4,089	49.9	Incompetence		Poor Location	67	3.9	51	2.4	225	2.7
								Competitive Weakness	226	13.2	306	14.5	1,238	15.1
								Other	77	4.5	82	3.9	397	4.8
21	1.2	37	1.8	109	1.3	Disaster:	Some of these occurrences could have been provided against through insurance . . . . .	Fire	11	0.6	10	0.5	44	0.5
								Flood	1	0.1	1	0.1	3	0.0
								Burglary	2	0.1	3	0.1	8	0.1
								Employees' Fraud	1	0.1	2	0.1	6	0.1
								Strike	1	0.1	5	0.2	14	0.2
								Other	5	0.2	16	0.8	34	0.4
2	0.1	—	—	3	0.0	War Mobilization		Shortage of Manpower	—	—	—	—	1	0.0
								Shortage of Material	2	0.1	—	—	2	0.0
14	0.8	20	1.0	59	0.7	Reason Unknown		Because some failures are attributed to a combination of apparent causes, the totals of these columns exceed the totals of the corresponding columns on the left.						
1,713	100.0	2,110	100.0	8,198	100.0	TOTAL		The figure 0.0 indicates a percentage less than 0.05.						
25.3		30.8		30.7		FAILURE RATE FOR EACH PERIOD**		CURRENT LIABILITIES	\$59,249,000		\$102,176,000		\$484,928,000	
				2,546,781		NUMBER OF LISTED NAMES AT END OF 1952†		AVERAGE LIAB. PER FAILURE	\$34,588		\$48,425		\$59,152	

\* Experience not well rounded in sales, finance, purchasing, and production on the part of an individual in case of a proprietorship, or of two or more partners or officers constituting a management unit.

\* \* Annual rate of failures per 10,000 listed names.

† The total number of names was obtained by an actual count of the names, excluding branches, listed in the Reference Book at the end of 1952.



establishments rebounded from the late Summer decline and was about the same as in June, while manufacturing casualties reached the highest level since June, 1950.

Most of the increase in manufacturing failures in October centered in the textiles and apparel and furniture industries where casualties were the heaviest since early in 1950.

Among retailers, the rise in failures was more general, prevailing in most lines. A substantial increase lifted the toll among food stores and eating and drinking places to the highest level in some nineteen months; automotive failures rose to a four-year peak.

Twice as many transportation and business and repair service enterprises failed in October as in the previous month. There was little change in the number of failures among construction contractors. The failure total for wholesalers held steady when a decline among food distributors was offset by mild increases in the other lines.

Compared with a year ago, construction failures continued at about the same level, but there was a marked upward tendency in all of the other functions.

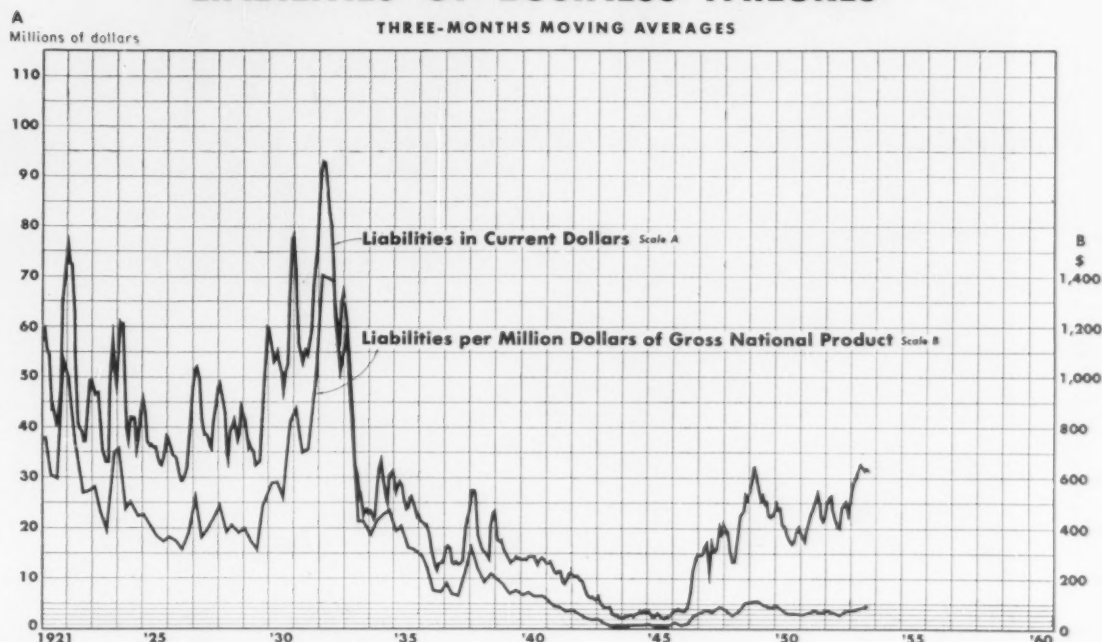
Failures equalled or exceeded the year-ago level in all manufacturing industries except food. Most wholesale lines had more failures than a year ago, with a marked rise in lumber and building materials.

#### FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number 10 Months 1953	Liabilities 10 Months 1952	Number 10 Months 1953	Liabilities 10 Months 1952
MINING, MANUFACTURING...	1,489	1,329	121.6	90.6
Mining—Coal, Oil, Misc...	36	35	2.5	3.3
Food and Kindred Products...	132	142	15.7	11.4
Textile Products, Apparel...	363	322	25.2	17.5
Lumber, Lumber Products...	231	211	11.8	10.0
Paper, Printing, Publishing...	99	91	10.4	4.6
Chemicals, Allied Products...	51	38	6.9	3.9
Leather, Leather Products...	88	73	6.4	3.7
Stone, Clay, Glass Products...	31	35	1.3	1.8
Iron, Steel, and Products...	51	42	10.2	3.6
Machinery...	125	107	16.2	18.4
Transportation Equipment...	46	36	5.4	1.8
Miscellaneous...	236	197	9.5	10.8
WHOLESALE TRADE...	760	637	43.1	36.6
Food and Farm Products...	222	196	14.1	9.7
Apparel...	29	45	0.9	1.5
Dry Goods...	33	31	1.9	1.0
Lumber, Bldg. Mats, Hdwre...	81	48	7.7	2.8
Chemicals and Drugs...	30	16	1.2	0.9
Motor Vehicles, Equipment...	26	23	0.9	0.9
Miscellaneous...	339	278	16.5	19.8
RETAIL TRADE...	3,610	3,265	96.5	62.6
Food and Liquor...	730	781	12.6	11.4
General Merchandise...	125	119	3.8	2.8
Apparel and Accessories...	506	500	13.6	9.1
Furniture, Furnishings...	554	553	21.0	8.7
Lumber, Bldg. Mats, Hdwre...	184	153	6.1	4.2
Automotive Group...	429	249	14.4	4.9
Eating, Drinking Places...	667	713	14.8	14.2
Drug Stores...	97	94	3.4	1.3
Miscellaneous...	318	303	6.8	6.1
CONSTRUCTION...	838	700	34.6	29.5
General Bldg. Contractors...	310	257	16.2	16.8
Building Sub-Contractors...	481	418	13.4	11.7
Other Contractors...	47	25	5.0	1.1
COMMERCIAL SERVICE...	537	507	17.9	21.8
Pass and Freight Transport...	173	149	6.5	13.1
Misc. Public Services...	19	28	2.2	1.2
Hotels...	20	23	3.3	1.1
Cleaning, Dyeing, Repairs...	60	72	1.0	1.1
Laundries...	32	34	0.9	0.7
Undertakers...	3	10	0.1	0.3
Other Personal Services...	34	44	0.4	0.8
Business, Repair Service...	196	147	3.5	3.6
TOTAL UNITED STATES...	7,234	6,438	313.6	241.2

Liabilities do not necessarily add to totals because of rounding.

## LIABILITIES OF BUSINESS FAILURES



With the exception of 1949, the liabilities of failures this year consistently exceeded the levels in any of the preceding years since 1935. However, as a proportion of the Gross National Product, the value of the output of goods and services in this country, liabilities of failures have not differed appreciably from the levels in other post-war years, and have been well below the pre-war comparisons. Liabilities figures are from DUN & BRADSTREET, INC., Gross National Product from the United States Department of Commerce.

Retailing failures were uniformly more numerous than a year ago; in furniture and appliances, casualties were more than twice last year's toll. Automotive failures were about three times as large as in October 1952.

For the first ten months of this year, failures were more numerous than in the corresponding period of 1952 in all of the major industry groups. Liabilities were higher than a year ago in all sectors except commercial service. While failures in commercial service were 6 per cent more numerous than in the corresponding ten-month period of 1952, liabilities were down 18 per cent.

Failures in mining and manufacturing in the first ten months of 1953 were 12 per cent more numerous than a year ago, while the liabilities involved were 34 per cent higher. Contrasting with the overall industry increase, failures were below the January-October 1952 level among the producers of food and kindred products, and stone, clay, and glass products.

In wholesaling, failures for the first ten months of 1953 were 19 per cent above the year-ago level, although there were divergent tendencies among the various wholesale lines. A 36 per cent decrease in the number of failures in apparel

wholesaling contrasted with a 69 per cent increase among wholesalers of lumber, building materials, and hardware.

The ten-month total for retailing failures reflected an increase in casualties among the larger retailers; the failures were up 11 per cent, whereas liabilities rose 54 per cent. The rise was especially pronounced in the automotive group, where failures were 72 per cent more numerous than a year ago and liabilities were almost three times as large. Another marked increase occurred among retailers of furniture and furnishings; failures rose 57 per cent and liabilities were almost twice as large as in the corresponding ten months of 1952.

Although the January-October liabilities of retailing failures were uniformly above a year ago, the number of failures declined 6 per cent among retailers of food and liquor, and among eating and drinking places; these were the only retail lines where failures were less numerous than a year ago.

Five geographic regions reported increases in failures during the month of October. There were notable upswings in the Pacific States, particularly California, and in the Middle Atlantic States, where failures reached a post-war peak.

In contrast with the upward trend in these areas, the South Central, West North Central, and Mountain regions had slightly fewer casualties in October than a month ago.

More concerns failed than a year ago in all areas, with the sharpest relative rises in the South Atlantic, West South Central, and Pacific.

Large cities had a relatively more severe increase in October failures than the balance of the country.

#### THE FAILURE RECORD

	1953 Oct.	1953 Sept.	1952 Oct.	P.C. Chge.
DUN'S FAILURE INDEX*				
Unadjusted.....	36.2	30.7	27.4	+32
Adjusted.....				
Seasonally.....	38.9	36.1	29.8	+31
NUMBER OF FAILURES	840	686	631	+33
NUMBER BY SIZE OF DEBT				
Under \$5,000.....	132	90	114	+16
\$5,000-\$25,000.....	412	321	325	+27
\$25,000-\$100,000.....	222	199	143	+55
\$100,000 and over.....	74	76	49	+51
NUMBER BY INDUSTRY GROUPS				
Manufacturing.....	188	145	146	+29
Wholesale Trade.....	84	85	54	+56
Retail Trade.....	404	336	291	+39
Construction.....	89	89	88	+1
Commercial Service.....	75	31	52	+44

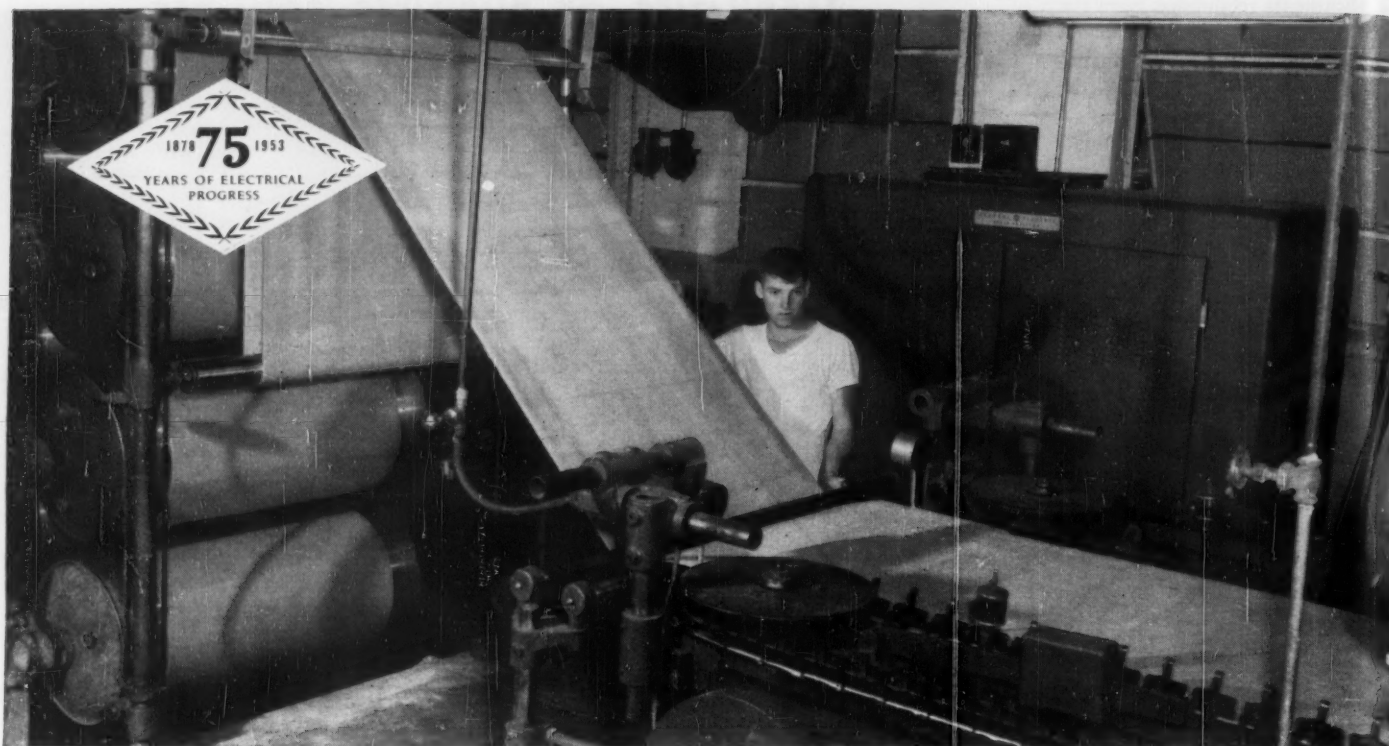
(LIABILITIES in thousands)

CURRENT.....	\$37,076	\$33,817	\$35,049	+6
TOTAL.....	\$7,298	\$4,050	\$5,299	+6

\* Apparent annual failures per 10,000 listed enterprises, formerly called DUN'S INSOLVENCY INDEX.  
† Per cent change, October 1953 from October 1952.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.



**CONTROL SENSITIVITY** of the G-E Speed Variator at the Jefferson Mill Inc., Jefferson, Ga., helps cut costs by enabling the operator to speed up the splicing of the cloth rolls . . . enables him to easily con-

trol processing speed for any type of cloth. The Speed Variator is a packaged unit . . . easily installed in any convenient location . . . provides your machine with stepless speed control up to a 40 to 1 ratio.

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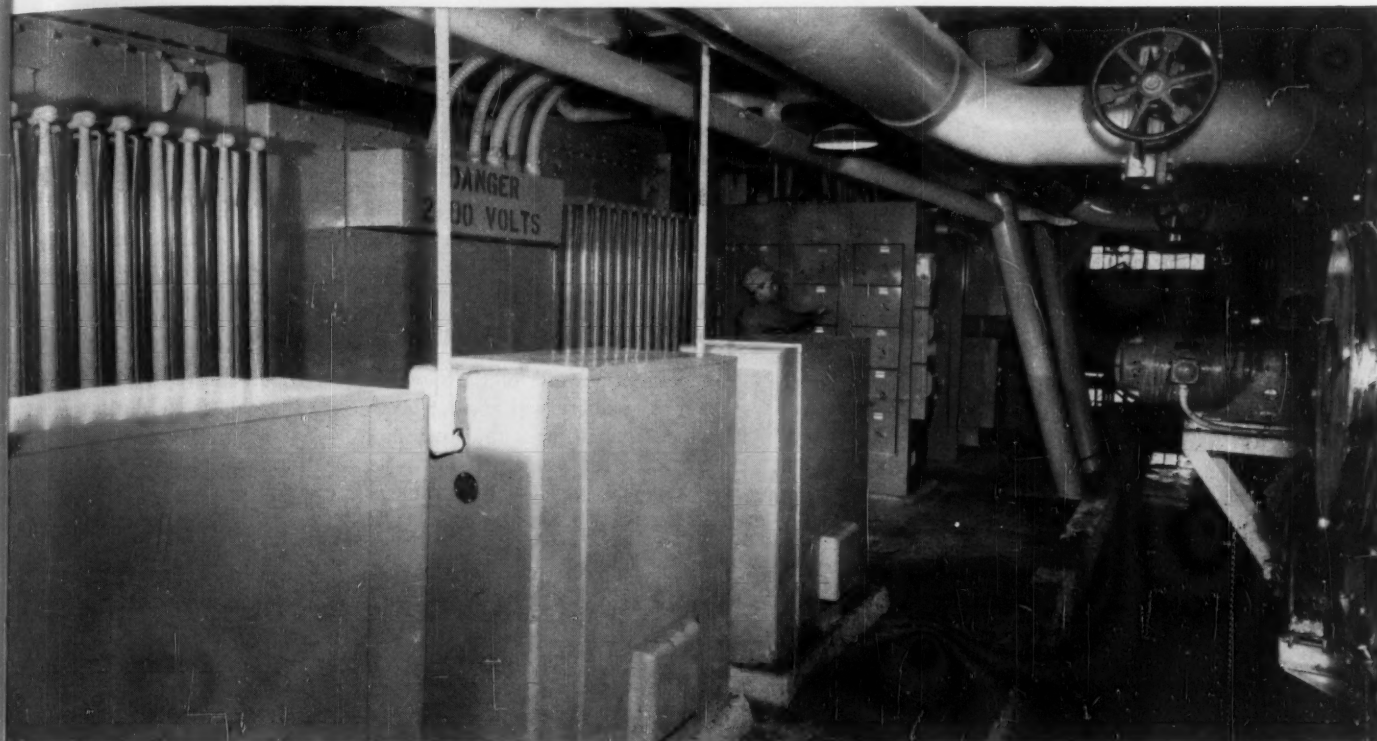


**G-E ACA MOTORS**, now control coal stokers at the Socony-Vacuum Oil Co., Inc., Olean, N. Y. Working directly from AC current the ACA motor offers low cost, low range stepless speed adjustment.



**G-E THY-MO-TROL DRIVE** accurately controls chemical proportioning pumps at Fibreboard Products, Inc. East Antioch, Calif. This electronic drive offers precise control in speed ranges up to 100 to 1.





**G-E SPEED VARIATORS** at the Ohio Boxboard Co., Rittman, Ohio, centralize control of various stock preparation processes . . . guard stock thickener speeds. Here you see three of the Speed Variator

units—foreground . . . Available in ratings from 1 to 200 hp the versatile G-E Speed Variator can be adapted for even closer speed regulation by the addition of an amplidyne or electronic regulator.

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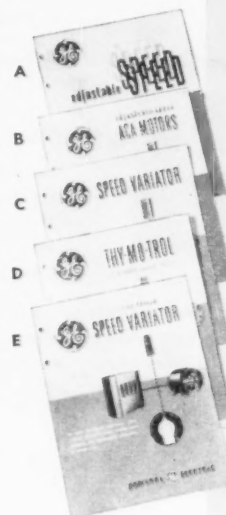
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COMPANY .....

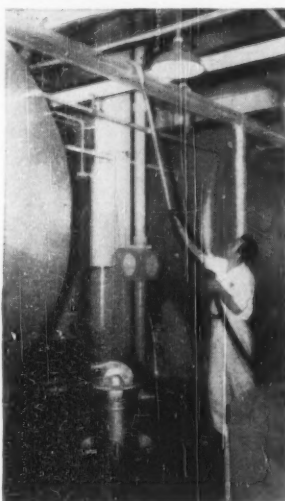
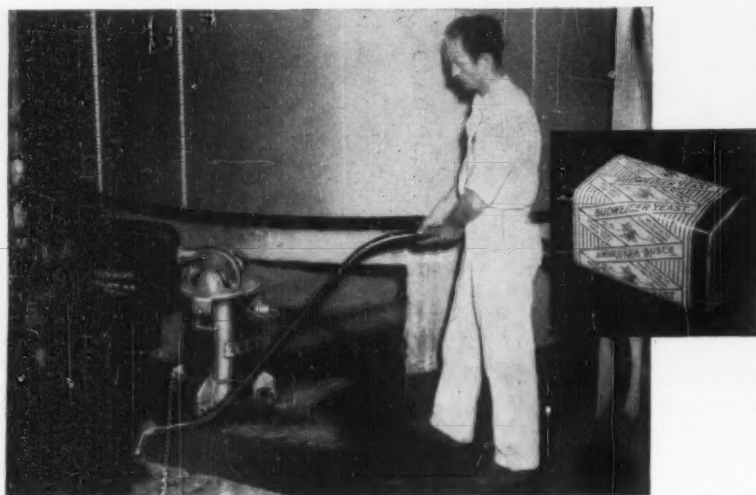
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**OBSERVATIONS ON FRANCE**

*Continued from page 53*

difficulties involved in collecting taxes from five million cynical small business men needs no elaboration. In a system lacking any rationale the binder of moral obligation is simply missing, and without it there is no way of organizing mass reporting and collections. Fantastic stories circulate also concerning the falsification of returns by wealthy individuals. The workers are more likely to be caught because of the Government's resort to withholding taxes, which makes them the underdog except to the probably inadequate extent that they are the principal beneficiaries of non-taxable social benefits. The net impression is one of a mass of feebly compensating inequities.

There is no doubt, however, that even apart from inequities of the structure, the Government provisions for collecting taxes are extremely loose. There are not enough tax collectors and auditors in the first place. Payment is sometimes simply not made even when the returns are proper. One collector alleged that of the checks he did receive nearly half were of excellent rubber and that payments came in over months and even years in dribbles. Reserve powers through which to compel collections are feeble, lacking penal penalties although nominally permitting fines.

There is an important point lying in the background of all this. It is not uncommon for tax assessments to lack any direct relationships to benefits received by tax-paying categories. In any economic system featuring both steeply progressive taxes and liberal social welfare programs, this will be the case. But there can come a point where the divorce is so complete that all sense of the cost of benefits is lost. That point may have been reached in France.

Total identified contributions of individuals to social security purposes come to only one-sixth of social security outlays, direct taxes paid by individuals provide only one-fourteenth of Government expenditures.<sup>1</sup> Individuals pay to the Government over-all only a little more than a third of what they receive from the Government. There are nice questions here as to whether the people could or would

knowingly pay any substantial fraction of what they receive, or whether they would demand nearly so much if some way could be found to bring the costs home. It should be noted here, however, that most of even the business taxes, such as the manufacturers' 14 per cent sales tax, are indirect. Being thus associated directly with the retail prices of goods and services the consumer is certainly aware of them.

But this is to abstract from the disorderliness of the whole fiscal structure, and the whole would probably have to be razed before sense could be restored to any major part. Nor need we insult current French Governments with an assumption that they are insensible of even chaos. They are very intelligent people and know what they would like to do, and fall regularly in efforts to do it.

*Competition:* There is not enough competition. The writer has little reliable case evidence, but this belief is so general among resident American observers, theoretical and practical, that he feels safe in adopting it. The following particulars will be written, therefore, without apology for each separately, but with the admission that they constitute hearsay rather than reporting.

Not merely costs, but also profits are too high. French manufacturers, unlike Americans, are still bidding for the thin crust of the market at high unit profits. It is true that their costs have been hoisted by general inflation to the point of making it increasingly difficult to compete in world markets. A devaluation could cure that difficulty, but without any lasting benefit unless accompanied by reforms within France of which this is one of the most needed. From the same bolt of cloth, and at least equally important, is the absence of pressure to lower costs through modernization and higher productivity. Price fixing and agreements in restraint of trade are common.

This does not mean that all that is needed is a Sherman Anti-Trust Act or a Federal Trade Commission. These are outcroppings of our own peculiar environment and are given basic character anyway by an administrative and judicial history that we could hardly offer to others.

<sup>1</sup>Juvenal; op. cit. P. 53



as an intelligible model. Perhaps we do have something to offer in our adaptation of the economics of distribution, with its stress on volume and attendant low marginal and average costs. Of this much it may not be presumptuous to recommend study, however critical, although France's different structure of income distribution and consumer purchasing power even here suggest the presence of a hen-and-egg type of problem.

### Power Groups

Societies of small and intermediate sized enterprises are reputed to be very powerful. They can, on occasion, grant or refuse rights of entry into their trades or industries. If they assent, they can dictate the location of and even kind of business to be done by the applicant. One of the principal means at present seems to be through control of raw materials; the societies work closely with the Government import agencies. In the aggregate, associations are disciplined to the point of being able to elect members of the National Assembly from all over France and, through these gentlemen, to secure legislative concessions for small business. One Frenchman, meditating on our rather general solicitude for small business, added that its powerful political organization was one of the liabilities of France.

The writer did not contact the retailers' segment of French business or any authority thereon. Opinion that it is in a sorry state is widespread. Illustratively, in his November 1952 report to the trustees of the Committee for Economic Development, Marion Folsom said, "The distribution system in France is very inefficient. It was reported to us that there are twice as many retail stores as are needed. High mark-ups on small turnover are the rule, and there is little effective competition."

The Government is almost surely a party to some of these misdemeanors, if deviations from our own philosophy and, in the main, our practise can be called that. There is no strong will for competition; it doesn't figure heavily in the French scale of values. And it follows as surely that, in the absence of positive policy, practise will be negative. So far no firm steps toward reduction of monopoly and intensification

of competition seem to be contemplated.

**Investment:** Almost all comments on this subject by sojourners in France evidence discouragement, and this one will on balance be no exception. For that very reason it is desirable to stress at once the keen awareness of French authorities and business men of the handicaps under which French industry labors and of the bold plans for improvement laid and partly realized.

When one remembers the neglect of the basic economy of France from at least the turn of the century until the post-war period (except for occasional life-saving spurts), and the great gap in basic capital development that had to be filled, he will appreciate the near-drama in what has already been done. The great expansion of electric power capacity, the modernization of coal and steel industries, the subsidization of potential export industries were all needed and were among the things that could be done. Taken with the other costs that France has had to bear after the war they meant inflation, and criticism and disaffection because the fear of inflation was greater than other fears. For the sake of the future this calculated risk was run. The new four-year plan for agriculture will aggravate it further, but something radical has to be done about this most basic of all French industries.

Spared the spur of foreign competition and able to rely on Government buying to relieve the pain of high costs, it is in to-day's world slugging match principally decorative. Comparisons with still evolving American agricultural policies are not invited and, if pressed, could be rejected in part on grounds of differences in degree and initiative.

With ample per capita acreage and soil that could be kept fertile enough, France imports food. So a major attack is being mounted by the Government. Within four years farm output is to be raised 20 per cent with the purpose of permitting a 10 per cent increase in domestic consumption and a 200 billion franc surplus for export at competitive prices.

Measures will include intensive technical education, consolidation of small farms, a 10 per cent increase in the use of fertilizers, mechanization and motorization, a big leap



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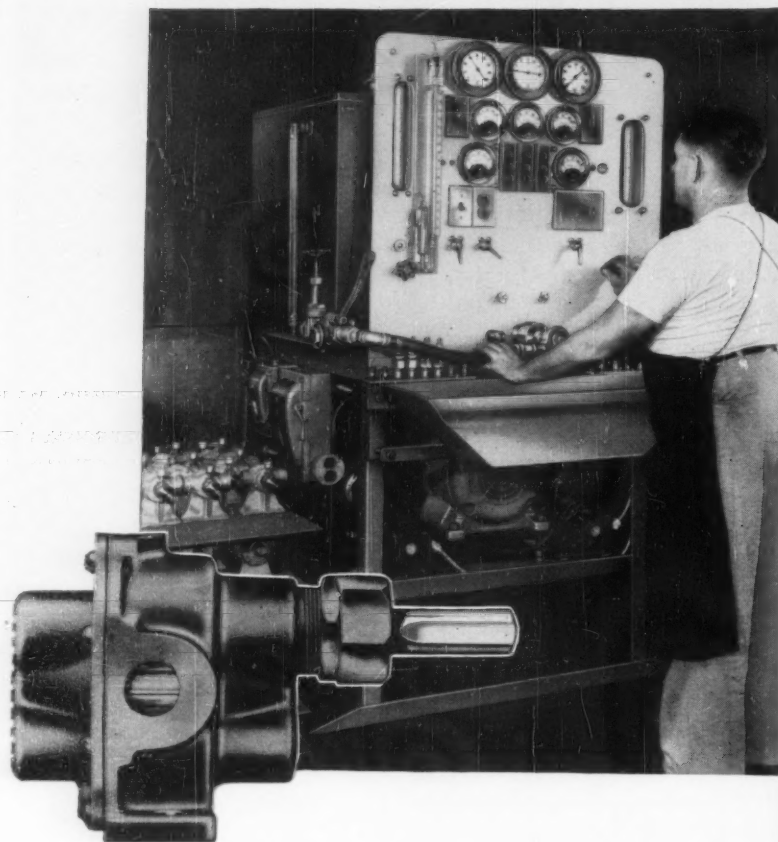
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Every Oberdorfer bronze pump now produced is tested by one of the performance measuring devices designed in our laboratories and illustrated above.

This machine very accurately and rapidly discloses any variations from our high standards of volumetric efficiency at several speeds and pressures, as well as inches of vacuum, power consumption, foundry quality and the degree of precision of machined parts and assembly operations.

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ahead in the use of tractors (which already had been making substantial progress), road-building, improved methods of processing and storage, irrigation, short-term credit accommodation, and export assistance. From 600 to 800 billion francs may be invested, spent, loaned, or self-financed.

Vigorous expansion in North Africa must also be entered on the credit side of this ledger. Private as well as Government investment has been pouring into these countries and the ultimate all-around benefits should be substantial.

So much of a tribute to the vision and energy of current French Governments is called for. The underlying industrial situation must still be stated.

Investment in private manufacturing industry has made no substantial gains since the war. The principal causes of this lethargy are probably heavy taxes and a dearth of capital. The combination of miniscule savings and high interest rates has all but wiped out the private capital market. One of the most damaging results has been a rate of

progress in productivity that among the lowest in Western Europe. In real terms it is even lower than the statistics show, for productivity is a function not of output tonnage, but of satisfied demands, and because of the protection accorded French industry, the people are obliged to buy whatever manufacturers choose to make.

Inasmuch as high costs and designs adapted to the protected French market rather than to world markets were found to be among the principal barriers to expansion of French exports and elevation of domestic living standards the cycle closes rather discouragingly. It may be that upon completion of the Government's investment program in basic industries (see above) either taxes or deficits can be reduced and additional funds made available to private industry with decreased danger of inflation.

In this case, as contrasted with the problem of competition, the Government is keenly concerned and has already been paying subsidies and making loans to numerous industries and firms regarding

*salesmen's sample cases  
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Each of our sturdy carriers contains such exclusive features as heavily-reinforced sides, tops and corners, and rust resistant hardware. Truly, there is no finer product made, no richer variety of styles and sizes to fill your need. **Write for our complete catalog #153** showing sample cases and fibre products for all lines.

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"First, producing steam with oil would cost us up to 30% more than coal burned the modern way.

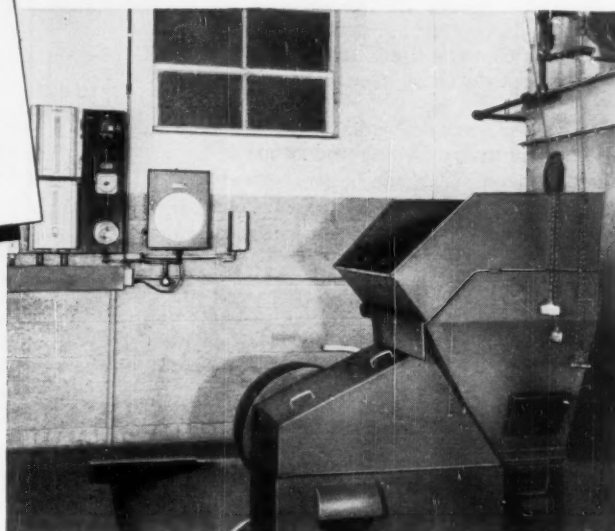
"Secondly, if we burned oil, a mechanical or electrical failure could shut us down tight. With coal, even if our single stoker broke down, we could hand-fire and keep going.

"For dependable low-cost steam, we're convinced this coal-burning installation is our best bet."

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"By burning coal instead of oil, we save up to 30% on fuel costs and enjoy trouble-free operation!"

says C. R. Crowther, Vice President  
Reading Glazed Paper Corp.  
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**Here's a tip** that can save you dollars on steam costs. Equip your plant with a modern coal-burning installation designed to fit your specific needs.

You'll find modern combustion equipment has made coal more economical than ever before. You'll find that up-to-date coal and ash-handling equipment will cut your labor costs and provide you with a clean, convenient, dust-free operation.

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**Baltimore & Ohio  
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as crucial to the recovery of France.

The housing industry remains all but stagnant, although the persistence of a punishing system of rent controls has probably contributed even more to this state than the capital shortage. There is the usual evasion in practise through a clutter of special charges and neglect of repairs. Basically, rents are permitted to follow the person rather than the property. As tenants leave (which they seldom do if they can help it) the landlord can, upon successful appeal, charge the next tenant a rent that is commensurate with his means. The main purpose is to hold down the costs of low income laboring groups and it is, of course, abused as rent control is always in part abused. One of the most striking features of the country to a visiting American or Briton is the lack of building.

Not to be overlooked under this heading of course are the tremendous home restoration projects in war-torn Normandy, Brittany, and Provence. Nor the economic corollary that if France is already overstraining economic resources and inflating her currency through state-financed industrial expansion, she might seriously aggravate that kind of trouble by adding a great housing program. Her governments could quite plausibly defend themselves on a first-things-first doctrine, thus narrowing argument to one over the composition of the post-war investment program that they might also win. Even so, observers would continue to deplore the attendant lack of incentives to both builders and gold hoarders.

By and large, investors do not cut much of a figure in French economic life to-day. Their share of total personal income may approximate 4 per cent of which only about 1.5 per cent is distributed by corporations; somewhat more than 2 per cent is yielded by real estate and improvements; and less than 0.5 per cent is in the form of interest on the public debt.<sup>1</sup> The relative pittance credited to income originating with corporations is a reflection not merely of the predominance of small business, but the need of most businesses to conserve earnings because of the lack of a capital market.

*The concluding installment of this article will appear in January.*

<sup>1</sup> JOURNAL; OP. CIT. P. 53

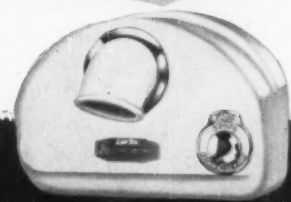


"These bags under my eyes are caused by the O.P.S., the gray hair by N.P.A., the bald spot by employment problems, my ulcers by the steel strike, and you have the gall to worry me about a shortage of towels in the men's room!"

**End Towel Expense**

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Provides AUTOMATIC 24-Hr. Service!

New, faster-drying Sani-Dri eliminates ALL towel expense. No more washroom litter, towel-clogged plumbing or empty towel cabinet nuisance. You have fast, efficient drying service — hand dryers for washrooms, hair dryers for showers. Sani-Dri quickly pays for itself—saves up to 85% of washroom maintenance!



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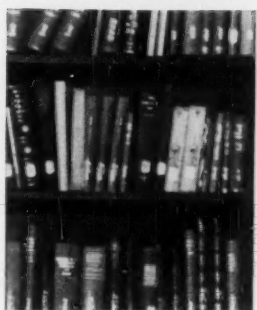
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# Executive BOOKSHELF

## Horse Sense

Those splay old work-horses of the after-dinner speech—standard of living, mass production, and purchasing power—are trotted out again in the recent book, *The Standards We Raise* by Paul Mazur. Here, however, they appear in a new provocative panoply for, unlike many business spokesmen, Mr. Mazur, an investment banker, decries the adulation we have paid to mass production as the stallion of the American way of life. Nevertheless, neither does he mount and ride off in opposite directions that ponderous Percheron—purchasing power—so highly favored by labor spokesmen. Instead the author presents his prescription for dynamic consumption to stabilize the economy at progressively higher levels, so necessary during the hot peace when industry easily meets civilian demand with less than full production.

Mr. Mazur visualizes the crux of the problem as the process of turning purchasing power into purchases, needs into wants. The American standard of living—sometimes criticized by carpenters as being so high that few can reach it—is considered more the cause than the result of our industrial power. How to keep these standards high without resorting merely to the goading of “keeping up with the Joneses” is deftly described by the author. The ingredients of his prescription, neither disturbingly unorthodox nor magnificently unattainable, encompass better merchandising, an expanded Council of Economic Advisors, meshing output and consumption, and robust research.

Harper and Brothers, New York, 173 pages, \$2.50.

## To Get Ideas

Few things are as irresistible as an idea whose time has come; but also few objects resist birth so stubbornly as a timely idea. Some companies, such as General Electric, which has been conducting a course in creativity for the past fifteen years, have developed programs to draw worth-

while ideas from business people. Most, however, rely on the traditional suggestion box to stir ideation. However, a number of companies recently approached Mr. Alex Osborn, the “O” in the well-known ad agency, BBD&O, to prepare a text-book for projected courses in the techniques of creative thinking.

The resultant product of Mr. Osborn’s applied imagination is the new volume, *Applied Imagination* which has already been adopted by the University of Buffalo and MIT for courses in creative thinking. Written in a fluid, anecdotal style, the book easily qualifies as a self-help tool for those whose imaginations are like the wings of an ostrich: sufficient for rapid running but not for flight. For the author has examined in detail the entire process of creative thought, frequently neglected in a pattern of life in which the accu-

mulation of flaccid facts alone seems the ever-present urge. He stresses that while it may never be a science, creative thinking is an art which can be learned through the assiduous application of the methods discovered by many leaders in the past.

A bibliography and list of questions for each chapter add to its usefulness while a manual of instruction is provided for teachers. A wide dissemination of this volume should make company suggestion boxes as well-stuffed as an “imagineer’s” notebook.

Charles Scribner’s Sons, New York, 317 pages, \$3.75.

## Source of Sales

The fissures and ruts in the field of selling are explored in *Why Do People Buy?* More than a

Hope for the harried hunter of **last-minute Christmas gifts** is offered in this list of gift books. Even that bane of the donor’s life, the man “who has everything,” should be pleased with one of these, for they qualify as pleasantly impractical luxury books—infrequently added to the library of the busy executive yet more than welcome as a gift.

**LAND BIRDS OF AMERICA**, by Robert Cushman Murphy and Dean Amadon. McGraw-Hill Book Company, Inc., 330 W. 42 St., N.Y. 18, 240 pages, \$12.50.

Whether one is a sportsman, photographer, nature lover, or inveterate bird-watcher, this impressive volume will be as welcome as the first robin. Heralded as the most important bird book since Audubon’s, it contains almost 300 photographs, most in full color, of birds at home.

**A PICTORIAL HISTORY OF THE AUTOMOBILE**, by Philip Van Doren Stern. The Viking Press, 18 E. 48 St., New York, 17, 256 pages, \$7.50.

A family album showing the detailed ancestry of the creature which has done most to change America. Hundreds of photographs reveal the social and industrial effects of the horseless buggy and its high-powered progeny. Contains early advertisements and other mementoes.

**PICTORIAL HISTORY OF AMERICAN SHIPS**, by John and Alice Durant. A. S. Barnes and Company, 232 Madison Avenue, New York 16, N.Y., 312 pages, \$10.

The enchanting epic of life afloat from the Indian’s bark canoe to the luxury liner is depicted in this lavishly illustrated volume. This entertaining collection of Americana encompasses Mississippi showboats, whalers, slave ships, yachts, and the salty men who trod their decks.

**THE COLUMBIA HISTORICAL PORTRAIT OF NEW YORK**, by John A. Kouwenhoven. Doubleday and Company, Inc., 575 Madison Avenue, New York 22, 550 pages, \$21.

The growth of the monstrously appealing city from a small gathering of Dutch in 1614 to the conclave of nations at the present time. Nearly 1,000 meticulously chosen photographs and prints—many in color and most never before published—make this graphic history striking as a skyscraper but much more suitable as a Yuletide gift.

**A PICTORIAL HISTORY OF THE SILENT SCREEN**, by Daniel Blum. G. P. Putnam’s Sons, 210 Madison Avenue, New York 16, 336 pages, \$10.

The fascinating farrago of frolic and melodrama which did much to form the social landscape. Somewhat less animated but no more vocal, the idols of the silent screen reappear on these pages like old friends from the past offering a rich measure of nostalgia.

**FLIGHT** by the Editors of Year. Simon and Schuster, Inc., 630 Fifth Avenue, New York 20, 192 pages, \$10.

From the ineffectual fluttering of the first failures to the resounding rockets of today, the story of man’s search for wings is told in 1,000 pictures and 75,000 words to mark the fiftieth anniversary of flight.

# BODY BY M.F.C.\*



**Molded  
Fiberglass  
Company**

When Chevrolet decided to mass produce the Corvette, their revolutionary new fiberglass-plastic sport car, they naturally wanted the most reliable and experienced molder in the field.

Therefore they chose the MOLDED FIBERGLASS COMPANY, whose continued skill and "know how" have made this organization the world's largest producer of Fiberglass reinforced plastics.

Kaiser also has chosen MOLDED FIBERGLASS to make Fiberglass molded parts for their new sport car.

Besides car bodies, this Company makes hundreds of different items, including furniture, loudspeakers, refrigerator parts, switch housings and lamp shades. Our products combine a high strength-weight ratio with resistance to corrosion, thermal and electrical insulation, and attractive appearance.

Perhaps you have an application  
in fiberglass-plastics. Write to:

**molded  
Fiberglass  
company**

CUSTOM  
MOLDERS OF  
FIBERGLASS  
REINFORCED  
PLASTICS

Ashtabula,  
Ohio

study of motivations, this collection of articles from *Fortune* magazine probes the art of selling, an essential exercise that can turn recession into recovery in many industries. While the most dangerous depths were discovered in the retail field, the study uncovered other areas unmistakably in need of improvement. Blueprints for improvement include the skilful use of merchandising and salesmanship, with techniques suitable for particular conditions.

By pleasantly fusing stories and statistics, the volume analyzes such ponderables as self-service, night-openings, discounts, the "new" non-flamboyant, servicing salesmen, and many others, including perhaps the most important problem of all—the status of the salesman in American society. Although this volume is decidedly not a magic wand for changing prospects into customers, it should be absorbing reading for thoughtful management people concerned with selling.

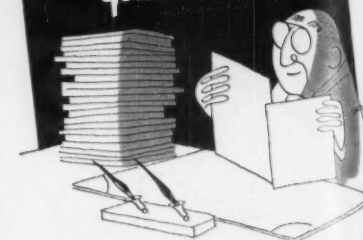
McGraw-Hill Book Company, Inc., New York, 270 pages, \$3.50.

## Cost Guard

To neglect distribution costs while emphasizing manufacturing costs is somewhat akin to describing the earth primarily in terms of its land area. Although distribution costs are not as large a part of total costs as water is of the globe's surface (71 per cent), it has been estimated that about 59 per cent of all costs are distribution costs.

So it is rather surprising that greater attention has not been given to distribution costs. Perhaps accountants, financial managers, and others have found in distribution costs some of the traits of the sea around us: constant motion and change, resistance to exact measurement, and engulfing waves of work. Not easily engulfed is Frederick M. Eisner, a doughty CPA, who presents a luminous log of his explorations in *Profit Analysis, Distribution Costs, Working Papers*, in which he presents the concept of "sales price accounting," a system designed for calculating the distribution costs for particular products and customers. The development of similar working papers should enable many companies to satisfy more economically the FTC requirement under the Robison-Patman Act of demonstrating the actual basis for a price dif-

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**TYPE EV SPEEDRANGERS** are electronically-controlled, Thyatron type, adjustable-speed power drives with a wide range of operating speeds and good speed regulation.

**SIZES.**  $\frac{1}{8}$  to  $1\frac{1}{2}$  HP with basic speed of 2400 RPM.

**SPEED RANGE.** Drive speeds are adjustable down to one sixth of the basic speed for continuous duty, 50°C.; down to one twentieth of the basic speed, intermittent duty.

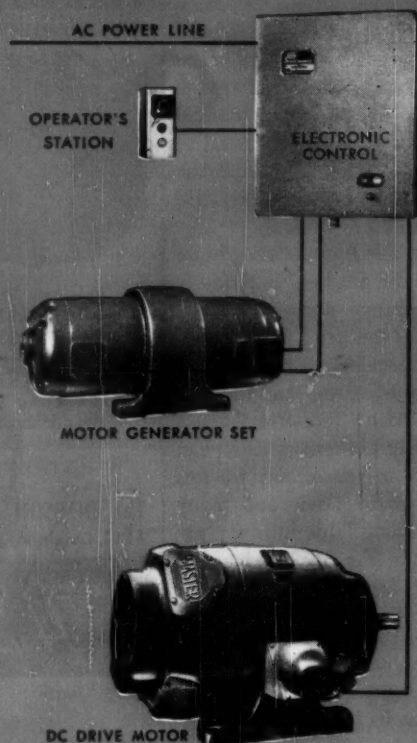
**HOW IT WORKS.** Single phase AC power is converted by Thyatron type electronic rectifiers to supply a DC variable-speed drive motor. This DC drive motor is of the separately excited type, which inherently has good speed regulation.

**STANDARD CHARACTERISTICS** are constant torque rating over the full speed range . . . complete control from a compact operator's station . . . infinite steps of speed adjustment . . . smooth starting and good speed regulation.

**OPTIONAL FEATURES** are jogging, reversing, dynamic braking, wide or special speed ranges and special duty cycles.

# New

## electronic variable speed drives



**TYPE GV SPEEDRANGERS** are electronically-controlled, motor-generator type, adjustable-speed power drives with a wide range of operating speeds and good speed regulation.

**SIZES.** 2 to 10 HP with basic speeds of 2400, 1750 and 1150 RPM.

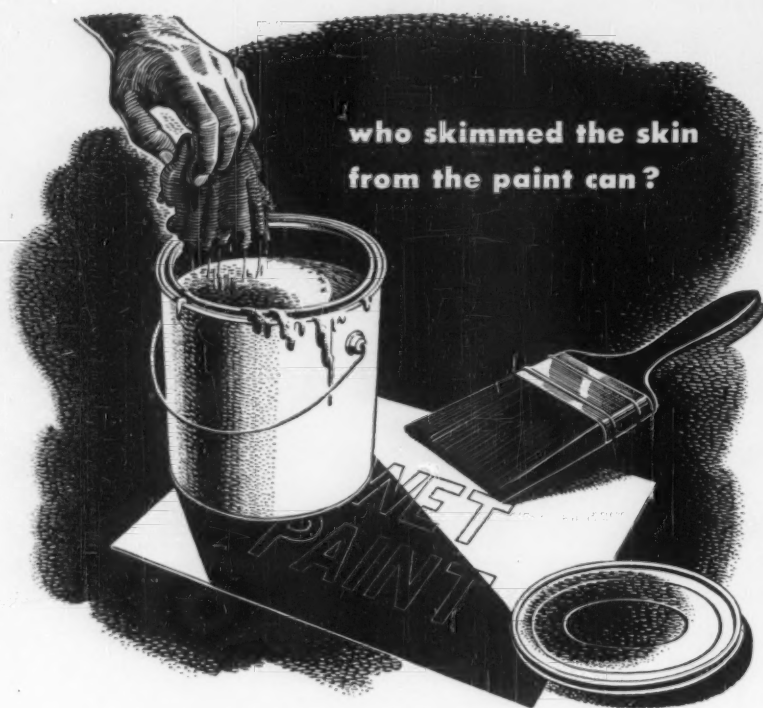
**SPEED RANGE.** Drive speeds are adjustable down to one sixth of the basic speed for continuous duty, 50°C.; down to one tenth of basic speed intermittent duty.

**HOW IT WORKS.** Three or two phase AC power is converted by a motor-generator set and by tube type electronic rectifiers to supply a DC variable-speed drive motor. This DC drive motor is of the separately excited type, which inherently has good speed regulation.

**OPERATION.** The Type GV Speedrangers have the same standard characteristics and optional features as listed above for the Type EV Speedrangers.

**MANY TYPES.** The DC drive motor for both the Type EV and GV Speedrangers are available with Master Uni-brakes, Fluid Drives and any of the five types of Master Gearmotors.

**THE MASTER ELECTRIC COMPANY**  
DAYTON, OHIO



### ...another outstanding achievement of Borg-Warner!

Now it's goodbye—and *good riddance*—to bothersome, wasteful "skin" that formed on surfaces of partially used cans of paint! Thanks to MARBON 9200 soluble high styrene paint chips and paint resins, paint manufacturers are keeping their product permanently "skinned"—every drop instantly usable, ready to spread. And this is only *one* of the ways MARBON 9200 is making paint manufacturers and paint customers happy!

Paints formulated with MARBON 9200 have no lingering odor... have a tougher finish that resists acids, alkalies, salts and industrial fumes... retain their original color and gloss through many more scrubblings... are easily applied over a wider variety of surfaces by brush, roller, spray, flow coat, tumbling and dipping. MARBON 9200—because it comes in four viscosity grades—allows producers of paint to expand their lines using the same basic ingredients and equipment. And these manufacturers make substantial processing savings in the bargain!

MARBON 9200 is just another example of how Borg-Warner research and development is helping industry improve its products and its profits!

**B-W Engineering makes it work**  
**B-W Production makes it available**



Almost every American benefits daily from the 185 products made by

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THESE UNITS FORM BORG-WARNER, Executive Offices, Chicago: ATKINS SAW • BORG & BECK BORG-WARNER INTERNATIONAL • BORG-WARNER SERVICE PARTS • CALUMET STEEL • CLEVELAND COMMUTATOR • DETROIT GEAR • FRANKLIN STEEL • INGERSOLL PRODUCTS • INGERSOLL STEEL LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON • MARVEL-SCHIEBLER PRODUCTS • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD. • NORGE NORGE HEAT • PESCO PRODUCTS • REFLECTAL • ROCKFORD CLUTCH • SPRING DIVISION WARNER AUTOMOTIVE PARTS • WARNER GEAR • WARNER GEAR CO., LTD. • WOOSTER DIVISION

ferential granted a quantity purchaser. Other companies attempting to meet competition or launch a new product should find this a valuable sounding device for locating elusive costs.

Charles Eisner, 70 Linda Avenue, White Plains, N. Y., 364 pages, \$10.

### Short Notes

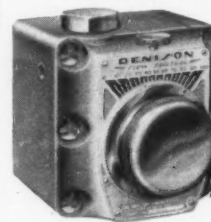
By skilfully shrinking the ponderous nine-pound reference work, *The Columbia-Viking Encyclopedia*, its editors, under the direction of Dr. William Bridgewater, have produced a volume, *The Columbia-Viking Desk Encyclopedia*, which has eliminated 80 per cent of the words while retaining 40 per cent of the facts. Busy executives who have fluttered between dictionary and almanac like disappointed humming-birds will without doubt be immensely pleased by this new volume. This 1104-page volume, available at \$7.95 (regular edition), \$8.95 (thumb-indexed), and \$12.50 (de luxe), can be ordered from the Viking Press, 18 E. 48th St., New York 17.

Encyclopedic yet not encumbered with a mass of rarely used information is the new *Metallurgical Dictionary* by J. G. Henderson and J. M. Bates. Ranging from Abating to Zyglo, this practical volume covers more than 5,000 terms concerned with both production and physical metallurgy. The system of cross-indexing and the inclusion of the most up-to-date developments in the field should transform this 396-page book into a well-thumbed manual for many people who put metal to work. Available for \$8.50 from the Reinhold Publishing Company, 330 W. 42nd St., New York 36.

Whatever the origin of the phrase "a drug on the market," it certainly lost its relevancy during the past decade when the drug industry expanded spectacularly. The discovery of many miracle drugs and the easy entry into many lucrative foreign markets in the absence of European competition help to account for this gigantic growth. These and many other facts about this industry are encapsulated in the 38-page booklet, *The Drug Industry* prepared by E. W. Axe & Co., Inc. which provides detailed data and information about the particular companies in the field. Available for \$.50 from 400 Benedict Avenue, Tarrytown, N.Y.

## Your Engineers can count on DENISON for cost-cutting oil-hydraulic equipment

For more than a quarter-century, Denison engineers have pushed ahead in setting higher performance standards for hydraulic equipment... in making the full advantages of hydraulic power adaptable to a wider range of needs... in simplifying the design of hydraulic components to provide more ruggedness with less maintenance, even in today's higher-speed, high-pressure circuit operations. Your own engineers—or one of Denison's field engineers—can show you how the design and construction features of Denison HydroILic Equipment can work to your advantage in almost any hydraulic circuit need.



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This new FLOW CONTROL VALVE—with exclusive full-scale regulation of flow in a wide range of maximum-flow settings that can be made without changing spools—is typical of the advanced engineering featured in all Denison equipment. We'll gladly send complete data.

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**DENISON**  
*HydroILics*



## ARE THESE YOUR BIG PROBLEMS?

Continued from page 50

ume mandatory if the balance sheet is to stay out of the red.

A maker of industrial supplies puts it this way:

"The rising costs of doing business make it necessary to maintain a high sales volume in order to pass the break-even point. In the face of growing competition and the inevitable price cutting of marginal competitors, it will probably be somewhat more difficult to maintain a profitable volume than in the past three years."

### Other Important Problems

Financial problems also cropped up in the replies—particularly in those of chief executives. The president of a plastics molding plant feels that his major operating problem in the coming year will be:

"To plan a maximum fixed asset budget which will be in balance with sales and profits. We are most anxious to modernize and improve our facilities at this time, but we wish to maintain an adequate reserve against an unfavorable trend in business."

The president of an electrical equipment firm also feels financing will be a serious problem "because of the amount paid in taxes due to EPT and the general tightening of credit." If, of course, the excess-profits tax is removed, he—and many others—will probably be able to breathe easier.

Interestingly enough, few company treasurers mentioned financial problems. Most of them felt the big problem would be sales.

As mentioned above, there was surprising uniformity in the replies to the questionnaire. For example, here are four statements:

1. "Our major operating problems will be reducing both manufacturing and selling costs; maintaining and increasing sales; and reducing break-even point. We are giving special attention to indirect labor costs."

2. "We are trying to reduce our break-even point so that we can maintain competitive prices. We are planning to give more attention to product engineering, and also to materials handling."

3. "Our major problem will be reducing operating costs to lower our break-even point. We are plan-

ning also to tighten inventory control so that we can follow business trends more closely."

4. "We will do everything we can to keep sales volume up (we have little hope of increasing it) and sales cost down. We want to increase efficiency and productivity to reduce break-even point. We plan to add new products to diversify our line and reduce cyclical trends. And we shall do everything we can to improve both middle and top management."

These statements were all made by company vice-presidents, but the companies range in size from less than a hundred to several thousand employees (the actual numbers: 50, 100, 1,200, 9,000), and in space from New York to Los Angeles. The products represented are office equipment, chemicals, pumps and meters, and home appliances. Yet it is almost impossible to distinguish between them. (Try it yourself before reading the next paragraph.)

Actually, the first statement comes from the largest of the four, a Midwestern manufacturer of home appliances.

Second is the smallest, a Pennsylvania firm that makes office equipment.

Third is a Los Angeles branch plant of a large chemical and drug concern. It has 100 employees.

Fourth is a 1,200-employee New York manufacturer of pumps and meters.

Considering the differing interests of the various management groups (top management, production, sales, and financial), there is surprising unanimity between them as well.

### Significant Differences

However, it does seem to be significant that the production executives are placing greater emphasis on product improvement than are the other groups. Furthermore, while all groups are worried about direct labor costs, the production executives are most conscious of indirect labor costs (including such items as maintenance and materials handling).

It is the production executives, too, who are most worried about the high cost of materials. Perhaps some of the others have been lulled

This is it . . . The truck with the

## "BOARDING HOUSE REACH"

**RAYMOND**  
**Reach-Fork**  
TRADE MARK

MODEL E2RT  
Capacity 2,000 lbs.



1. Reach-Fork enters pallet . . .



2. Picks up load . . .



3. Retracts load . . .



4. Lowers load for travel!

Imagine it . . . a truck that permits close-quarter operation in every warehouse in America! Only the RAYMOND Reach-Fork performs this space-making miracle. Because only the Reach-Fork has "boarding-house reach." It's another great truck from the firm that 3 years ago made 6-ft. aisles a reality!

**FORKS REACH RIGHT OUT** to pick up or deposit your load . . . extend 24" and back in seconds. No need to change your existing rack set-up.

**HANDLES ANY SIZE PALLET . . .** one truck handles pallets of any size without any changes in the truck.

**STACKS PALLETS CLOSELY . . .** ideal for loading and unloading motor trucks and boxcars, or for rack storage use.

**TIERES FROM 6-FT. AISLES** in any warehouse thanks to Reach-Forks short length and patented\*\* off-set drive wheel with 200° turning arc.

**DOUBLES YOUR STORAGE** by trimming 4 to 6 ft. off conventional tiering truck aisles.

**RAYMOND**

ELECTRIC INDUSTRIAL TRUCKS  
HYDRAULIC ELEVATING EQUIPMENT

\*PATENT PENDING

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**MAIL THIS COUPON** Learn how RAYMOND's Reach-Fork can produce dollar-and-space savings right in your own warehouse!

### The RAYMOND CORPORATION

4616 Madison St., Greene, N. Y.

Please send me Bulletin describing your new Reach-Fork Electric Tiering Truck.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

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STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_



## Heating coil saves twice its cost in a year

Lead coils were being used by a producer of automobile components to heat "dragout" chromium plating solution in a concentrating tank. Because of severe corrosion, the lead coils were either being repaired or replaced every month. This was costly not only in equipment and labor but even more so in downtime.

United Chromium was asked what could be done. The Unichrome Man urged installing a Unichrome tantalum heating coil (which is more than just acid-resistant—it's acid-proof).

A half year told the story. No more breakdowns. The coil paid for itself in six months. At year's end, savings totalled to almost twice its cost—and the coil is good for years more of such trouble-free service.



### MORE WAYS UNITED CHROMIUM HELPS TO SAVE



#### No cyanide ...no disposal cost

Problem of waste cyanide disposal is serious one. Containing no cyanide, the versatile Unichrome Copper Plating Solution has enabled companies to save on both disposal equipment and cost of disposal.



#### Maintenance money saved

A plant insulated and coated plating barrels with rubber. When a Unichrome Plastisol Compound was used instead, it not only cost less to apply, but also lasted 2 times longer.

### It pays to consult United Chromium on Metal Finishing Problems



United Chromium offers you the advantages of: (1) 25 years of specialized experience in metal finishing; (2) Wide experience in both organic and plated finishes; (3) A diversified line of products for decorative and functional finishing—including plating processes, protective coatings, chemical conversion coatings for zinc; (4) Thinking geared to cost-cutting, product-improving possibilities.

We'd welcome an opportunity to help you "Finish it better AND SAVE."

**UNITED CHROMIUM, INCORPORATED** 100 East 42nd St., New York 17, N. Y.

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In Canada: United Chromium Limited, Toronto, Ont.

into complacency by recent price drops in a few key materials.

So much for the specific replies. What can be learned from the survey on an over-all basis?

First, of course, the answers point up the key position of the production department in this competitive era. They recognize the relationship between production and sales, and the fact that there will almost certainly be new pressures on production—for special models, special packaging, and faster deliveries, as well as for reduced costs.

For example, the manager of a large metal fabrication plant expects "increased demand for services from customers as competition increases." And, he notes, "further demands for improvement of an already very high quality product will add to this problem and make [an adequate] profit more difficult to achieve."

Second, the results of the questionnaire provide a strong hint to those who wish to sell industrial products: Point up cost-reduction and sales benefits, and forget (relatively speaking, at least) the old more-output story.

### Sell User-Benefits

The user-benefits that are most likely to attract industrial purchasers are features that will help to increase the productivity of indirect as well as direct labor; that will add sales appeal; and that will help reduce handling and shipping costs.

This is the time, for instance, to introduce new and better maintenance and repair equipment; to revamp technical information aimed at helping equipment users; to check up on order-filling procedures to make sure shipments don't bog down anywhere along the line.

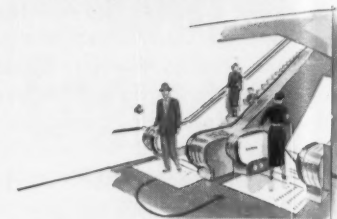
But perhaps the most important message of those who replied to the survey is one directed specifically at top management: The need to increase sales while holding down production costs puts a premium on good organization, good planning, top-notch methods and equipment, and good labor relations.

As the president of a company making conveying equipment put it, "Our only salvation is through proper analysis, study, hard work, and strict attention to business."

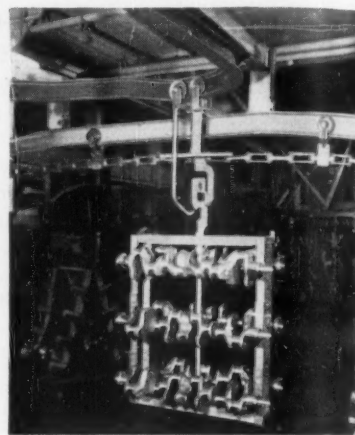
That's a good way to succeed anywhere and any time.

THE END

## Trans-Free Automation



**Trans-Free Conveyor System**—automatically transfers loads from main Live Line to Free Lines—and back again.



One of the intermediate production stations in the Allied Trans-Free Conveyor System, showing a rack of parts being transferred from the Live Line to the Free Line.

At various locations production parts can be automatically removed from the main Live Line to adjacent Free Lines. At these points, intermediate production operations are performed. Upon completion, the loads are automatically transferred back to the main Live Line.

The Allied Trans-Free System is applicable to any type of product, large or small.

Allied are specialists on *Automation* and highly engineered *Load Transferring* material handling systems. Consult with our engineering staff on material handling problems that arise in your plant.

See Allied Catalog 952 in Sweet's Mechanical Industries or write us for a copy



**ALLIED**  
STEEL AND CONVEYORS, INC.

17349 HEALY AVE., DETROIT 12, MICH.  
Complete Material Handling Systems  
Designed • Fabricated • Erected





*In these days of swift industrial progress, business is inevitably tied up with science. Taking questions from the lab and from the executive office, here is a pot-pourri for your leisure time. Score two points for each correct answer—if you end up over 100, you're scientific. Answers will be found on page 199.*

1. Can you give the full name for which these terms are actually the abbreviations?

- a) Radar
- b) Sonar
- c) Loran



3. What's the difference—between these pairs?

- a) Malleable iron—ductile iron
- b) Precision casting—die casting

4. Recent months have seen the mergings of several companies. Can you bring about the proper pairing of the companies listed below?

- a) Republic Steel 1) Merck & Company
- b) Kaiser-Frazer 2) Doehler-Jarvis
- c) Sharp & Dohme 3) Owings-Sharp, Inc.
- d) Creameries of America 4) George Failing Supply Company
- e) National Lead 5) Willys-Overland
- f) Westinghouse Airbrake 6) Beatrice Foods

2. You can put "English" on a billiard ball whether you're in the United States or the British Isles. But do you know where you'd be likely to see or use a:

- a) Yankee machine?
- b) Dutchman?
- c) French curve?

5. The English language is full of words with different meanings. For each of the sets below one word is common. Can you name them?

- a) grind; cut; a place to work
- b) flower; effluent stain; large block of steel
- c) leave precipitously; fasten
- d) newspaper; bearing surface of a shaft



6. All three of these terms are misnomers—can you tell why?

- a) Nickel-silver
- b) Acetate rayon
- c) Admiralty brass

## helping hand for short handed plants

Fewer hands move more materials faster  
when a Conco Crane provides the "muscle."  
That means lower costs. Write today  
for Bulletin 3000A covering the full line  
of Conco Cranes, Hoists, Trolleys —  
each backed by 36 years experience.

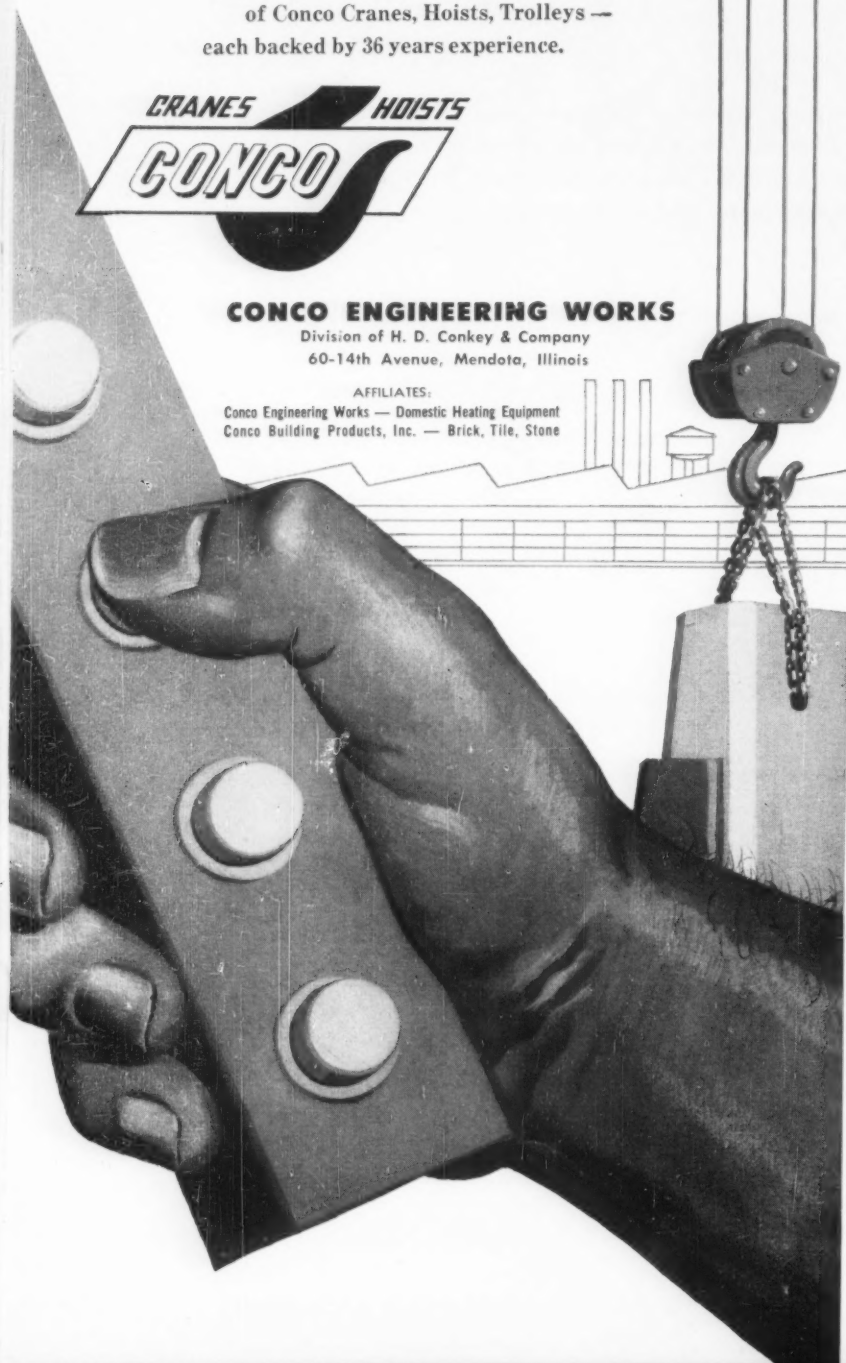


### CONCO ENGINEERING WORKS

Division of H. D. Conkey & Company  
60-14th Avenue, Mendota, Illinois

#### AFFILIATES:

Conco Engineering Works — Domestic Heating Equipment  
Conco Building Products, Inc. — Brick, Tile, Stone



## THE BUSINESS QUIZ

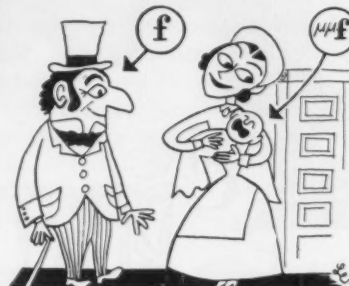
Continued

7. These are important points for industry. What are they?

- a) Eutectic point
- b) Curie point
- c) Break-even point

10. Chemically speaking, what are these compounds:

- a) Aqua regia
- b) Muriatic acid
- c) Caustic soda



11. Which of the following should always be capitalized? Why?

- a) Orlon
- b) Saran
- c) Nylon
- d) Dynel
- e) Dictaphone
- f) Deepfreeze
- g) Detergent
- h) Disposal

8. A lot of men have gotten their names in the dictionary as generic terms. One of them is "farad" (from Faraday). Can you name four others?

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_



9. In the third quarter of 1953 which of these items rose and which fell as compared with the second quarter?

- a) Building permits
- b) Gross Federal Debt
- c) Manufacturing sales
- d) Retail prices

12. It's always hot somewhere. Do you know what these phrases mean?

- a) Hot short
- b) Hot lab
- c) Hot wire

13. Here's a play on words to test your knowledge—a "give-and-take" question.

- a) Take a word that means "arrived" and remove a letter to make an industrial term meaning "an eccentric piece."
- b) Take a word that means a thin strip of wood and add a letter to make a "machine tool."
- c) Take a word that describes a good steak and add a letter to make a welding term.
- d) Take what you put in your coffee and remove a letter to make a word that means cleaning out and finishing a hole.

14. If you found these ores, what would be the most important metal you would get from them?

- a) Bauxite
- b) Hematite
- c) Ilmenite
- d) Pyrolusite
- e) Scheelite
- f) Sperrylite
- g) Stibnite
- h) Cassiterite
- i) Sphalerite
- j) Galena
- 1) platinum
- 2) zinc
- 3) manganese
- 4) antimony
- 5) aluminum
- 6) lead
- 7) titanium
- 8) iron
- 9) tungsten
- 10) tin



# United States Steel knows it pays to lease trucks from Hertz!

When an important division of United States Steel decides to lease trucks from Hertz, it's added proof that Hertz Truck Lease Service is more efficient and more convenient than private truck ownership.



The Hertz Truck Lease Service is *all* to your advantage: your capital is not tied up in expensive equipment; you have no maintenance or bookkeeping worries. Hertz furnishes *everything*—except the driver—and often for less than the cost of ownership.

**LEASE YOUR TRUCKS**  
*from* **HERTZ**  
**NEW TRUCKS...EVERYTHING**  
**FURNISHED BUT THE DRIVER**

## Rent passenger cars, too!

Hertz has rent-a-car stations in more than 500 cities throughout this continent and abroad. Fine new cars are available for an hour, day, week, or as long as you wish, and gasoline, oil, Public Liability, Property Damage, Fire and Theft Insurance and \$100.00 deductible collision protection are included in the low rate—at no extra cost. When you need a car, telephone or go to your local Hertz station.



If you now have trucks, Hertz will buy them and will either continue them in service or replace them with new trucks engineered to your specific job and painted to your specifications. Hertz keeps the trucks in tiptop condition...supplies gasoline, oil, tires, lubricants...properly insures them (through your own broker, if you wish). Extra trucks for use in peak periods or emergencies are also available.

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Look in your telephone directory under "H" for your nearest Hertz station

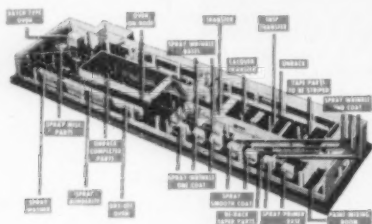
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**for Your Specific Needs**  
by **P-D**



Peters-Dalton has a long established reputation for properly designing and skillfully engineering the units of finishing systems and fitting them into high-production and economical operations.

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**METAL PREPARATION**—Operating on a conveyor, metal parts washers are designed by Peters-Dalton to remove all kinds and amounts of dirt sticking to parts. We are a recognized authority on washers that both clean and deposit a bonding or rust-proofing film used before a paint operation.



eliminate paint overspray.

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## KEEPING SMALL BUSINESS STRONG

Continued from page 42

stance emphasizing a co-operative approach with state and local groups.

In the area of financing, SBA has been assigned the small business and disaster loan functions formerly exercised by the Reconstruction Finance Corporation and is empowered to make loans up to \$150,000 to qualified small business concerns which cannot otherwise obtain loans on reasonable terms. SBA makes business and disaster loans from a revolving fund of \$55 million appropriated by Congress for SBA lending purposes in the current fiscal year.

Out of this revolving fund, SBA plans to set aside a reserve of \$5 million or more to meet the need for disaster loans. Allowing for this reserve, SBA has approximately \$50 million for the current fiscal year with which to meet the requirements of legitimate Government loans to small firms.

Under the Small Business Act, business loans by SBA are subject to these important restrictions: No loan can be made unless the small company can show that the credit sought is not otherwise available on reasonable terms; the loan must be of such sound value or so secured as reasonably to assure repayment; no direct loan may be made if a bank participation loan is available, and no immediate participation loan may be entered into if a deferred participation is available; the total amount of a loan or loans to a borrower may not exceed \$150,000; no loan, including renewals or extensions, may exceed ten years, except that a loan made for the purpose of constructing industrial facilities may have a maturity of ten years, plus the estimated time required to complete construction.

These criteria are set forth in the law. In addition, SBA's Loan Policy Board, which is made up of the Secretary of Commerce, the Secretary of the Treasury, and the SBA Administrator, who serves as Chairman, has adopted certain policies which also govern SBA's lending activities.

For example, the Board has adopted a policy of giving preference to loans which will "assist, expedite, increase, or maintain the production necessary to meet mili-

tary, defense, or essential civilian requirements."

This provision does not rule out loans for other purposes. However, it is probable that SBA's financial assistance program will be almost wholly confined to defense and essential civilian purposes in the current fiscal year, at least, because of the continuing urgency of the mobilization program.

In keeping with the statutory criteria, SBA will not make a loan unless the small company can show that it has exhausted the possibilities of obtaining the needed loan from a bank or other private source of capital or credit.

The Small Business Act requires that an SBA loan be of such sound value or so secured as reasonably to assure repayment. In applying this test to a proposed loan, SBA's policy is more liberal than that which was in effect under RFC. In loans made by RFC, tangible collateral was required. Under SBA's loan policy, the agency may take into account other factors in support of the soundness of a loan. These factors include the character of the company's management, the credit history of the firm, and the purpose for which the loan is sought.

SBA has no desire to compete with banks or other private sources of credit. On the contrary, one of the agency's major objectives is to



REICHHOLD CHEMICALS PHOTOGRAPH

help small business obtain required financing, to as great an extent as possible, from private sources. Toward this end, SBA is stimulating and encouraging increased financial assistance to small concerns by banks and other private sources by participating with them in making small business loans.

Moreover, SBA is actively seeking to develop additional and larger sources of private credit for small business through fostering the de-

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\*General Box Company Laboratory facilities are certified to make "National Safe Transit" tests

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velopment of state and local private credit organizations, such as those which are already operating successfully in various parts of the country, notably the New England States. In these credit organizations, banks and other lending institutions, public utility companies and other business companies, as well as private individuals subscribe capital to help small business concerns and in this way to help their own states and communities.

SBA believes that similar credit organizations to assist worthy small enterprises should be developed in every state. It has proposed this to governors and other public officials

per cent annually on the portion of the loan which SBA is obligated to purchase. This compares with the former RFC charge of a fixed rate of 5 per cent on its portion of loans of this type.

On loans in which there is deferred participation by SBA, with the bank advancing the full amount immediately and SBA agreeing to assume a portion of the loan, on demand, a charge is made to the bank to offset the lack of income from the funds which SBA must hold in reserve to cover the portion of the loan which it is obligated to purchase.

### Proportionate Charges

SBA charges of this type vary, depending upon the percentage of the loan which the agency is obligated to purchase. On loans in which the SBA obligation is up to 50 per cent, the charge is 1 per cent annually on the portion which SBA is obligated to purchase; from 50 to 75 per cent, the charge is 1½ per cent; over 75 per cent and not greater than 90 per cent, the charge is 2 per cent. Under the law, SBA cannot assume more than 90 per cent of any participation loan.

This sliding-scale policy will result in a smaller charge to banks and other lending institutions on participation loans than was formerly charged by RFC, which made a flat 2 per cent charge on the portion of a loan which it had agreed to purchase on demand. The result should be a greater number of participation loans by banks and other lending institutions, thus increasing the availability of private financing for small business enterprises.

On direct loans by SBA, the interest charge will be 6 per cent annually, an increase from the 5 per cent rate charged by RFC. SBA's Loan Policy Board believes that this

### The AUTHOR

WILLIAM D. MITCHELL received a degree in Business Administration from the University of Utah and a law degree from Stanford. He served with the armed forces from 1942 to 1946 in the military supply and procurement division. His post brought him in close contact with the Smaller War Plants Corporation, War Production Board, War Manpower Commission, Reconstruction Finance Corporation, and other Government agencies. Following his release from active military service, he became associated with the Quick-Way Truck Shovel Company of Denver, which was started with an idea and now has about 300 employees. In 1951 he was appointed as Counsel and Assistant to the President.

Mr. Mitchell is a member of the Bar of the District of Columbia, United States Supreme Court, and the State of Utah. He is also a Major in the Officers Reserve Corps, a member of the Rotary International and the American Ordnance Association.

and to banks and business men across the nation, and everywhere the response has been enthusiastic.

Through encouraging the formation of these reservoirs of private capital, and through participating with banks and other lending institutions in making loans, SBA expects to multiply by many times, in effect, the \$50 million which it has available for lending purposes in the current year. At the same time, it expects to bring closer the day when private lending sources can fill most, if not all, of the credit needs of small business.

On loans made by SBA, the Loan Policy Board has set the following interest rates:

On participation loans, both immediate and deferred, in which banks or other lending institutions originate the loan and SBA assumes a part of the amount, the interest rate will be fixed by the participating bank or other institution, with a minimum rate of not less than 5



"Ob, stop being so dramatic, Bailey, it's for a very charitable cause."





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rate corresponds with average private lending rates, in general. Further, the Board feels that public funds should not be used on this type of sound but unbankable loan without a commensurately higher rate than on SBA participation loans in order to protect the public interest.

SBA's interest rates on disaster loans are unchanged from those of RFC. The rates are 3 per cent on disaster loans for home construction or repair purposes, and 5 per cent on business disaster loans. Under the law, the period for which a disaster loan is made cannot exceed ten years, except in the case of home loans, which may be made for a period not exceeding 20 years.

### Financial Advice

In addition to its lending activities, and its work in stimulating the development of state and local private credit organizations, SBA also is assisting individual small business concerns with their financial problems. Financial specialists in the SBA field offices try to help the small companies overcome their problems without borrowing, or, if borrowing is necessary, to obtain financing from private lending sources.

In the area of procurement, SBA is working in various ways to increase the small business share of public and private purchasing.

Under a co-operative program with the military departments, SBA representatives and military contracting officials jointly review proposed purchases and earmark suitable ones in whole or in part for placement with small business. This program, begun by SDPA and continued and expanded by SBA, has already resulted in more than \$600 million worth of proposed Govern-

ment purchases being set aside for placement with small companies.

SBA also is certifying to the financial and technical competency of small concerns to perform specific Government contracts on which they are low bidders or on which their price quotations are within negotiation range; is encouraging large prime contractors to subcontract to the greatest possible extent with small companies and is helping them to locate suitable small plant facilities; is assisting small companies to form and operate small business defense production pools, and is providing small concerns with information on Government purchases and purchasing methods.

### Sharing Orders

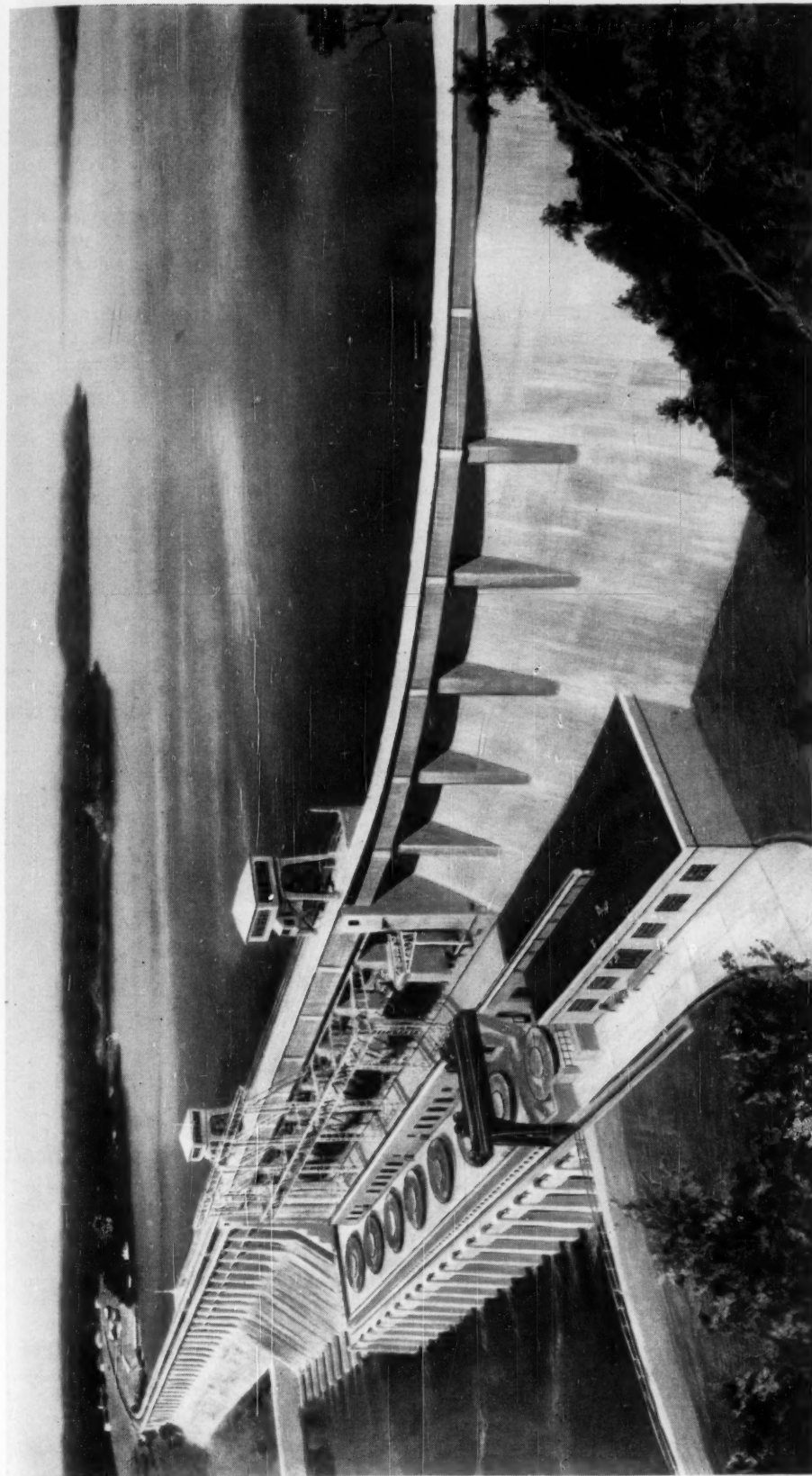
SBA's program in this area is not limited to Federal Government purchasing, however. Small business also needs and should have an equitable share of purchases made by state and local governments and by large companies, such as department stores and mail-order houses. SBA field officials are actively engaged in encouraging these public and private purchasing officials to give a fair share of their orders to small companies, and particularly those located within their own communities.

As another aspect of this same program, SBA is making available to small companies throughout the nation information on new products and new methods of production which may be suitable for adoption by them. For example, SBA is calling to the attention of small companies the more than 19,000 inventions which the Government owns outright or in which it holds an interest and that generally are available for use by small plants.

In the field of managerial and







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The design and construction of the initial installation of the Osage Hydroelectric Development, comprising six units of 23,887 kva each, was completed by Stone & Webster Engineering Corporation in 1931.

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technical aid for small business, SBA is seeking to broaden the scope of its assistance by promoting co-operative efforts in states and communities.

Often, small concerns cannot afford to provide for themselves the expert counsel which they need in setting up, for example, efficient accounting systems and taking advantage of new and improved business methods. Often, too, small companies with technical problems cannot afford to employ engineers or other technicians to help them solve their difficulties.

#### Open Clinics

SBA is giving these small companies the assistance they require, through personal counselling by specialists in its field offices and through brief, helpful publications which provide practical information on managerial and technical subjects. The agency also plans a series of management and technical clinics where small business men can meet with other small business men and with managerial and technical specialists to discuss their problems and possible solutions to them.

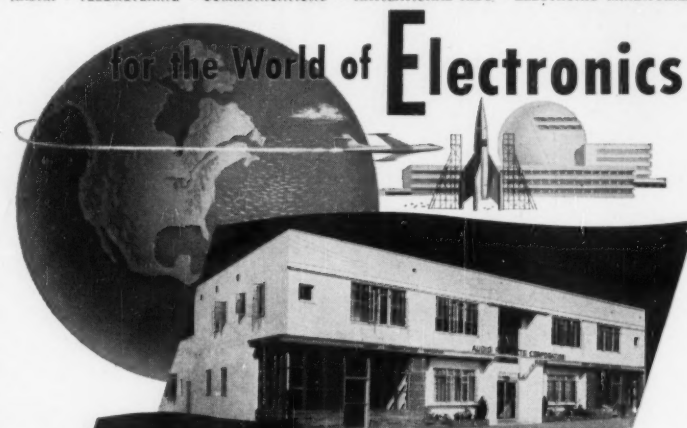
This is only part of the story,

however. As in the case of its other programs, SBA's long-range objective in this area is to develop increased sources of assistance to small business men at the local level. SBA therefore is seeking full local co-operation in the program and is stimulating the use of home talent and know-how in assisting small companies. For example, experts of various kinds in universities, colleges, civic and business organizations can be extremely helpful to small enterprises through a co-operative endeavor.

Aside from its programs in the major small business problem areas, SBA also is giving small companies policy representation and individual assistance in other areas, such as in regard to materials and equipment and to accelerated tax amortization of essential industrial facilities.

As the basis for co-operative Federal, state, and local action in assisting small business, SBA is helping in the formation of state advisory boards, made up of representative bankers, business men, and civic and educational leaders. In each state the advisory board will provide leadership, counsel, and assistance

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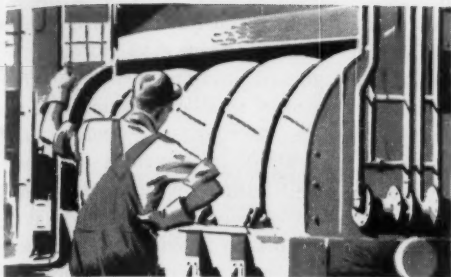
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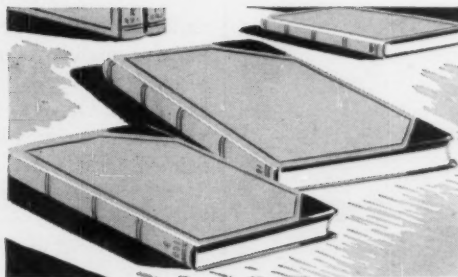
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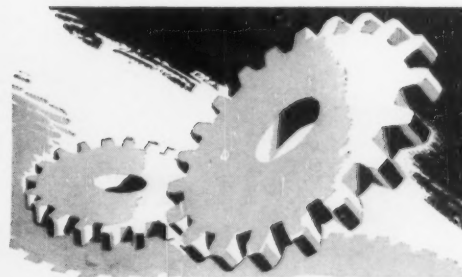




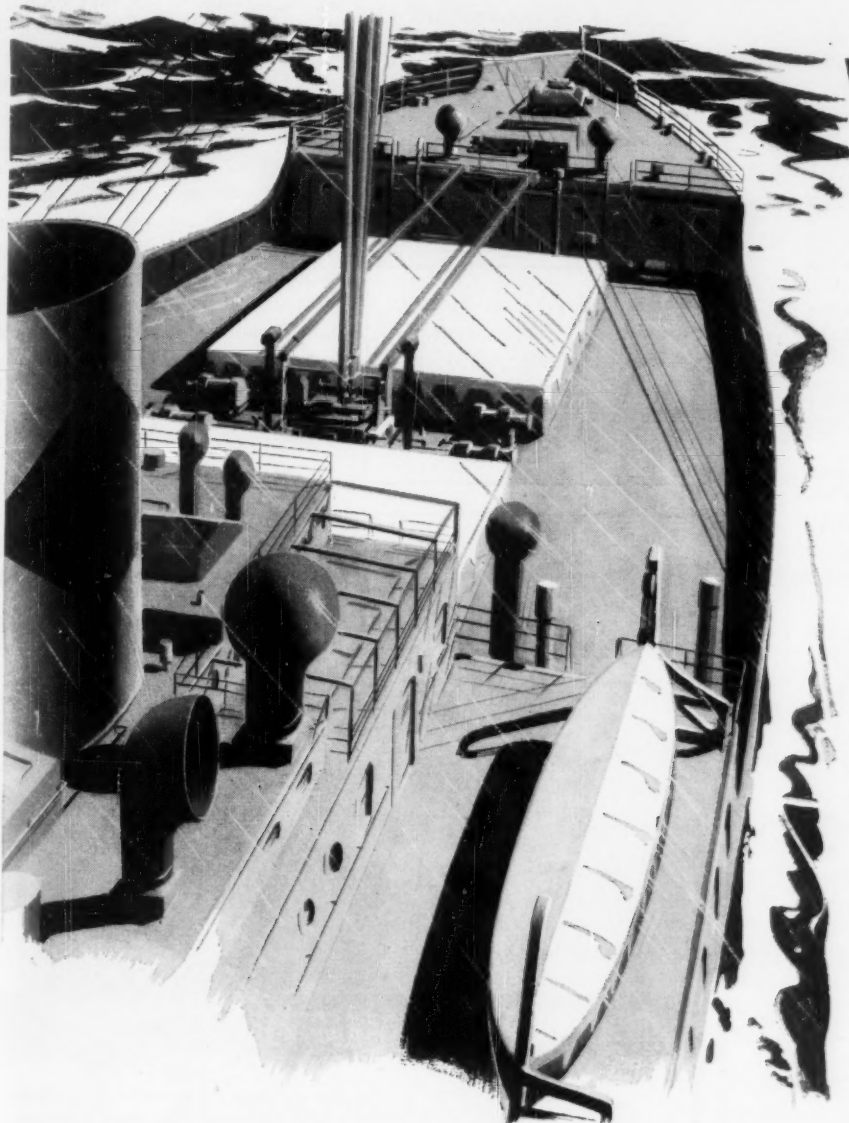
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# AMERICAN INDUSTRY

## TURNS TO MANUFACTURING IN HOLLAND

faced with shrinking export volume

to maintain sales in non-dollar areas

With dollar shortages in many areas cutting into export sales, 21 major American companies, during the last four years, have established wholly owned subsidiaries in Holland. Plants of many of these subsidiaries are already in operation; others are under construction. During the same period, 17 other American companies have invested capital in Dutch firms for the manufacture of American-designed products. These American companies selected the Netherlands as the base of their foreign operations because . . .

American companies can operate free of restrictions and with full cooperation from the Netherlands government.

Almost all basic raw materials needed in manufacturing are free of import duties.

Holland has a surplus labor pool of conscientious, industrious workmen.

Economic stability gives a high living standard at moderate wages. Unique social stability means NO STRIKES.

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Finished goods can be economically transported to other European countries over fine inland waterways, by road, rail, and from large seaports to other parts of the world.

Government aims are directed to attracting and assisting industry from outside Holland . . . AND . . . Political stability of the government insures continuance of its policies.

To assist American industry in evaluating the advantages of operations in Holland, the Netherlands government has assigned to a single agency—the Netherlands Industrial Institute—the handling of all contacts with American companies considering overseas operations. A 48-page book, "Industrial Possibilities in the Netherlands," gives comprehensive background information—copies are available on request.



**NETHERLANDS INDUSTRIAL INSTITUTE**

Room 43, 1-M—A, The Biltmore, New York 17, N. Y., LExington 2-5069

in developing private credit organizations, in promoting more business for small concerns, and in furnishing managerial and technical assistance. Once a state-wide advisory or organizing board has been formed in a state, local advisory boards will be set up in counties and municipalities to work with the state group and with SBA.

Those are the major ways in which SBA, the small business man's own agency, is helping him to overcome his problems.

### Urge Co-operation

SBA is not trying to do the job solely through its own efforts, because it knows that small business men, typically self-reliant, neither want nor expect an all-powerful central government to bear the entire load of their difficulties for

them. Instead, it is doing the job as the small business man himself wants it done—first, through encouraging community-wide action to assist small companies, and second, through co-operating with state and local groups to provide small business with services which these groups cannot provide alone.

Working together, SBA and state and local groups throughout the land are going to build a stronger, more prosperous small business community. The result will be a strengthening of the very foundation of our system of free, competitive enterprise, and greater assurance that our American way of life will be preserved.

If we keep small business strong, we need have no fear of the growth of Communism, totalitarianism, or any other alien *ism*, within our country. Nor do we need to fear monopoly. A healthy, prosperous, growing small business community is the nation's best defense against the inroads of alien ideologies on the one hand, and any threat of crushing monopoly within our economic system, on the other.

THE END

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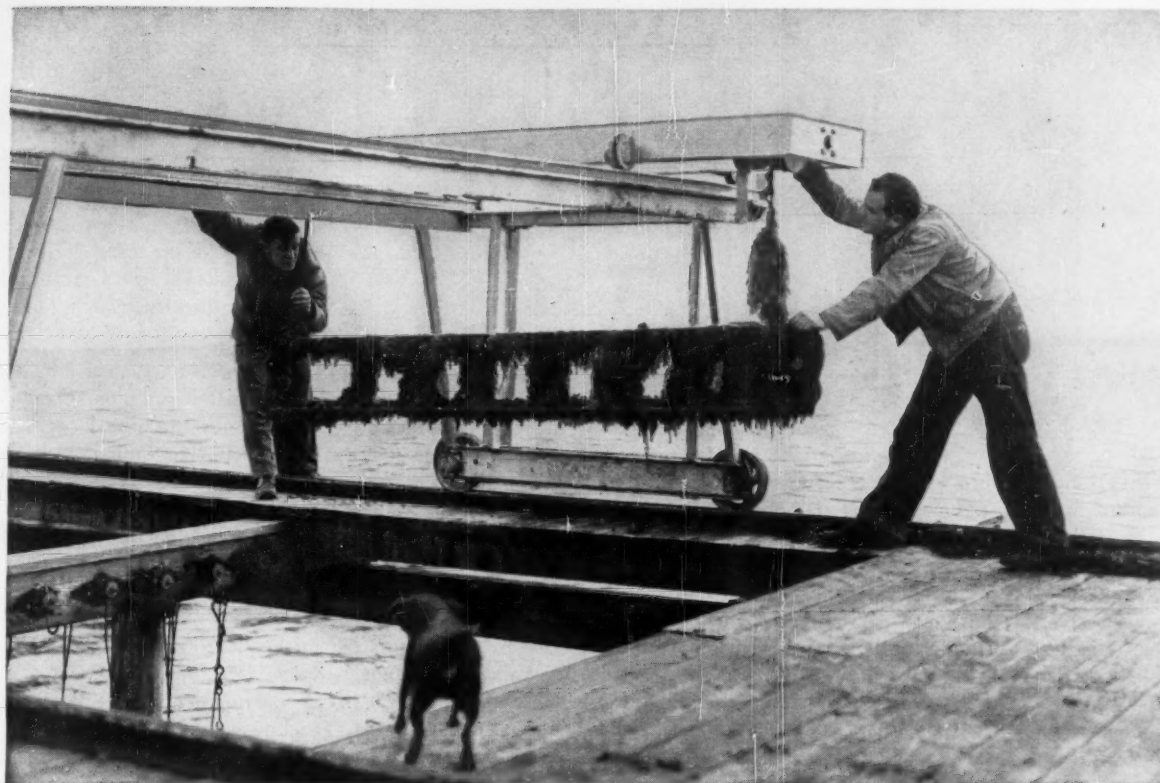
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## How hard can the sea bite?

When that question was asked about a material, the answer seemed easy to get. Almost *too* easy.

All that engineers did at first was to add salt to water to get the same saltiness as sea water. Then dunk a sample long enough to find out what would happen.

That *was* easy. But it *was not* the right answer. No one really knew how corrosive natural sea water could be . . . with its multitude of dissolved chemicals, its changing temperatures, its tides and currents, its living organisms and abrasive sands.

Right answers are available now, though. For during the last 18 years Inco Corrosion Engineers have tested various effects of real sea water on some 35,000 specimens. Working at seaside testing stations, they have run tests on many materials in salty atmosphere. Or in live sea water. Or ex-

posed to both alternately, through tidal action. They've studied the effects that velocity, marine growth and methods of coupling have on the deterioration of many metals.

If you're troubled by a problem arising from the sea around us, there is a chance that Inco engineers may already have the basis for an answer from their studies at the Kure Beach Corrosion Testing Station.

But, of course, yours may not be a marine problem. You may be much more interested in corrosion of some other sort: atmospheric, chemical, high temperature, or the effect of metallic breakdown on the quality of products being processed.

Whatever your particular corrosion "headache," the cure may be already available in Inco's mass of catalogued data on the behavior of metals under all kinds of conditions. The answer may well be an Inco Nickel Alloy. If no immediate answer is indicated, special investigation may be initiated to provide one. A special series of tests might be run for you . . . tests of *any* sort.

It's our job to help metals perform better. Why not write us in detail about your own problem? Better still, ask for one of our Corrosion Data Work Sheets to assist you in presenting your problem easily. Address The International Nickel Company, Inc., 67 Wall St., New York 5, N. Y.

### Inco Nickel Alloys



MONEL® • "R"® MONEL • "K"® MONEL • "KR"® MONEL • "S"® MONEL  
INCONEL® • INCONEL "X"® • INCONEL "W"® • INCOLOY® • NIMONIC® Alloys  
NICKEL • LOW CARBON NICKEL • DURANICKEL®

# INDUSTRIAL METHODS and Materials

## *Silicone rubber shows the way*

WITH ITS happy disregard for extremes of temperature and its resistance to weathering, aging, moisture and chemical attack, silicone rubber is proving a friend in need to many a product engineer when the specifications get tough.

Silicone rubber got its start during World War II—as a gasketing material for Navy searchlights and jet engines—where heat and vibration were too much for any of the standard gasketing materials. Next, it turned up in vibration mounting for aircraft instruments.

Now, it's moving out into a variety of non-military uses in both industrial and consumer products. Most domestic steam irons use silicone rubber gaskets, Dow Corning Corporation reports, "because they're odorless and stainless and prevent leakage of water and steam at tempera-

tures up to 500° fahrenheit." In Diesel-electric locomotives, silicone rubber O-rings keep hot water from leaking into the crank case—and greatly reduce maintenance costs because they last so much longer than other gasketing materials that have been used.

Still expensive as compared with rubber, leather, many plastics, and other gasketing, cushioning, and coating materials, silicone rubber compounds are not recommended for use where any of these materials are satisfactory. But, where temperatures range down to minus 60° fahrenheit or up to the 500-degree mark; or where aging, weathering, and chemical attack pose severe problems, silicone rubber may provide a new and better solution.

Three companies are now producing silicone rubber: Dow Corning Corporation, Midland, Mich.; General Electric Company's Chemical Division (Pittsfield, Mass.; Linde Air Products Division, Union Carbide, 30 East 42 Street, New York 17, N. Y. All three are hard at work find-

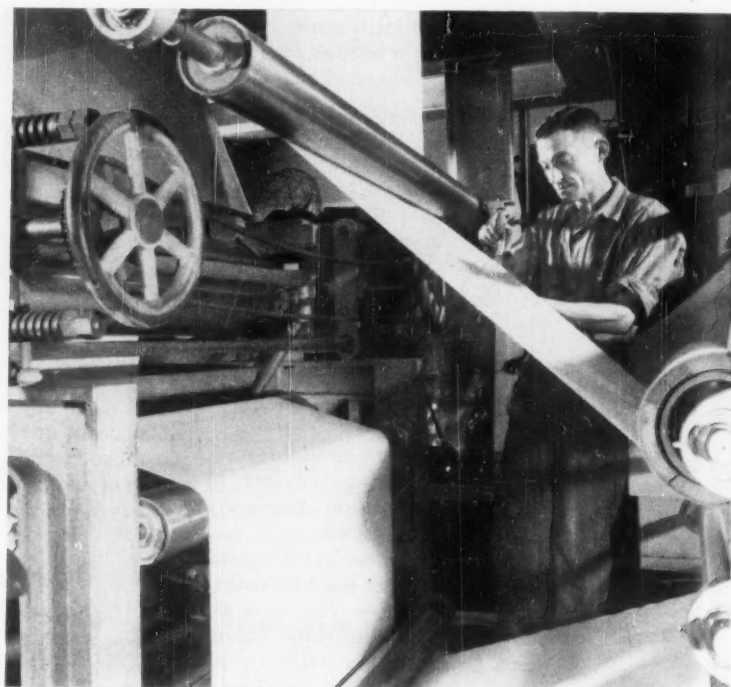
ing new uses for the material, and new and better compounds are rapidly being introduced. Just recently, for instance, Dow Corning and General Electric announced new formulations that can be made semitransparent (see photograph below) and offer good tensile strength, elongation, and resistance to compression set.

Both companies also have special compounds that can be formed in molds originally designed for natural or synthetic rubber—making it easy to switch from these compounds to the silicone material for bushings, O-rings, gaskets, seals, and similar molded parts. The materials are said to be unusually strong, too.

Proof of the progress of silicone rubber is the number of companies that are now molding the material—in expanded as well as solid form—and offering stock silicone rubber parts. Among these are: American Hard Rubber; Acadia Synthetic Products Division, Western Felt Works; Acushnet Process; Arrowhead Rubber; Connecticut Hard Rubber; Garlock Packing; Good-



Molded silicone rubber, flexible and semitransparent, protects this Army pocket compass from shock and moisture under a wide range of physical conditions, helps make sure it will be ready for use when it's most needed.



Silicone rubber coatings can now be applied to glass fabrics. GE reports coated materials retain physical and electrical properties at temperatures from minus 100° to over 500° fahrenheit, even in humid atmospheres.



all Rubber; Goshen Rubber; Minnesota Rubber & Gasket; Parker Appliance; Republic Rubber Division, Lee Rubber & Tire; Rubatex Division, Great American Industries; and Sponge Rubber Products.

### *Automatic machines: here they come*

The fully automatic machine tool is now approaching commercial reality, according to an announcement from General Electric Company. Its Specialty Control Department is now producing, for Giddings & Lewis Machine Tool Company, a record-playback control that makes it possible to run a machine through a predetermined series of operations without any attention from the operator. The first GE unit, a combination of a standard multiple-channel tape recorder and an electronic control panel, will be applied to a G&L skin miller for the aircraft industry, and is expected to double the production speed of integral wing sections.

GE points out, though, that this is by no means the only possible application for record-playback devices of this type. Similar devices might well be applied to opening and closing of valves, controlling temperature, pressure, and humidity, or operating an interlocking system of conveyors.

With the present unit, "instructions" are recorded electronically through a selsyn system while a skilled machinist is making the first piece. Then the tape puts the machine through its paces, turning out subsequent pieces rapidly and accurately. When a new part is to be made, it is only necessary to insert a new tape in the control unit. Furthermore, tapes can readily be stored and used on repeat orders, assuring exact duplication of the original parts.

Eventually, GE expects to have a computer to go with the playback unit that will translate dimensional data into electrical signals, eliminating even the initial manual operation involved in cutting the first piece.

### *Four ways to use fluorine plastics*

Even their best friends won't claim they're inexpensive, but the fluorine plastics offer so many advantages in chemical inertness, heat resistance, and electrical properties that they're being put to work in an ever-widening circle of applications.

For example, Du Pont reports that its "Teflon" (tetrafluoroethylene) plastic is now being used as a coating for glass cloth to produce a strong, durable, non-staining, and non-sticking fabric with a low coefficient of friction. It's finding an amazing variety of jobs. As just one example, the printing industry is using this fabric to line the raceways of collating machines (to speed paper flow and prevent smudging); as a covering for newsprint rolls; on folding machines; and in the production of plastic molds for electrotypes plates.

"Kel-F," M. W. Kellogg's fluorine plastic (tri-



New paper bag and new packing method bring a host of savings at Johns-Manville, safeguard product quality, too. Here's how they re...

### *Packing in the Savings*

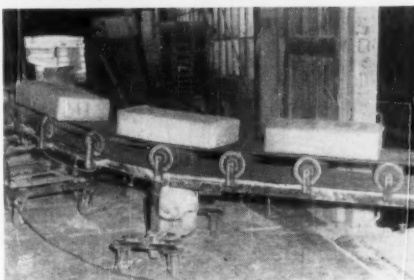
Engineers at Johns-Manville Corporation started out to reduce the cost of packing asbestos—and ended up with a new package and new packing method that are paying dividends all along the line.

Dissatisfied with the burlap bags that were being used, and with their mechanical packing method, J-M engineers first considered bulk shipment. But that damaged the asbestos fibers. Then they tried baling the material. The bales were big, heavy, and hard to handle. On the third try—a multiwall paper bag and a new hydraulic

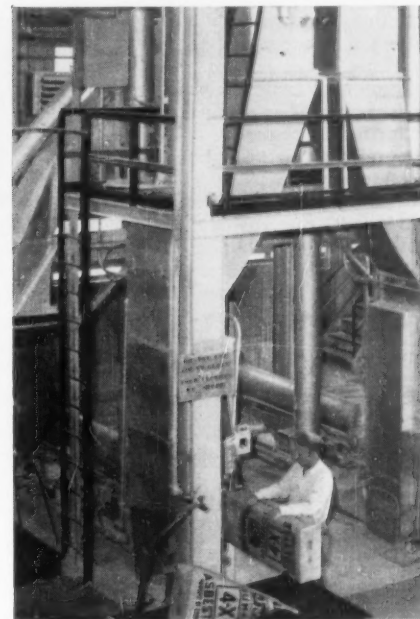
packing machine—they hit a home run.

The new method is faster and cleaner. The new package protects the fiber and prevents leakage. Handling is simpler and less expensive. As much as 50 tons of asbestos can be loaded into a freight car now; while the previous limit was 35 tons. Furthermore, paper bags don't have to be returned. That eliminates cleaning, sorting, mending, and freight costs. And J-M gets an extra dividend in company and product promotion: The new bag can be attractively printed; while the old one could not.

Old packing method, using burlap bag, was slow, messy, costly in several respects.



Compact and easy to handle, new multi-wall bag saves in shipping and storage.



New machine is fast, clean, makes it possible to pack more asbestos in less space.

AUTOMATIC ELECTRIC COMPANY — A GREAT NAME IN COMMUNICATIONS

making  
both ends  
meet...



**P-A-X does this —  
and saves money too!**

A man doesn't make any money for you when he's walking or waiting to talk with someone in another department—be it the next office or the far end of the plant.

A P-A-X Business Telephone System will stop this waste—keep employees at their posts—working!

Anyone in your organization can dial *inside* calls through this company-owned telephone system—and reach anyone else, without squandering time in the process. The employees at "both ends" will save time, errors and energy as they speed up routines via their own automatic telephone service.

P-A-X is automatic (dial) telephone equipment of the highest commercial grade—exactly as used by public telephone companies. Its cost is so low you can provide P-A-X telephones *throughout* your organization—for convenient, time-saving service to everyone. For a detailed report of P-A-X savings in a typical industry, call or write Automatic Electric Sales Corporation (HAYmarket 1-4300), 1033 W. Van Buren St., Chicago 7, Illinois.



**PAX** is a system of "inside" telephones, separate from the public telephones, and owned by the user.

**PAX** is completely automatic and establishes all "inside" calls, within seconds, at any time!

**PAX** saves on public telephones and switchboard—permits marked economies in rented equipment.

**PAX** is manufactured by the originator of the automatic telephone.

**PAX** telephones and switchboards are identical in quality with your public telephone equipment.



Please send me more information:

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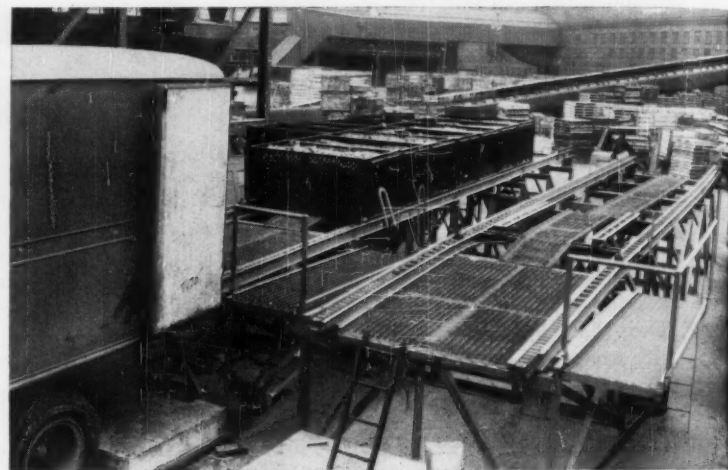
fluorochloroethylene) is moving into such diverse applications as chlorinator diaphragms and electrical connectors. In the former, paper-thin sheets of Kel-F film are used to prevent leakage of wet chlorine gas where its resistance to corrosion, flexibility over a wide temperature range, resistance to cold flow, nonporosity, low water absorption, and freedom from plasticizers make it a nearly ideal choice.

In electrical and electronic components, Kel-F is proving its ability to resist arcing and abrasion and hold its shape over a wide range of temperatures. Dage Electric Company is using it in special electronic connectors for atomic energy equip-

ment, and Brillhart Plastics Corporation is molding the material into electrical terminals for several high-voltage applications.

### How to sweeten textiles, paper, plastics

A material that's made from cane sugar and got its big production boost as a blood plasma extender now may go to work in plastics, textiles, paper, printing inks, and even oil well drilling muds. R. K. Laros Company, which produces a refined dextran, "Plavolex," for medical use, is now making higher-molecular compounds for the industrial uses mentioned above—



### Easy in; easy out

Loading and unloading of trucks carrying materials between plants has been stepped up almost tenfold at Ford Motor Company with the aid of gravity and tracked roller conveyors. While every company doesn't have Ford's problem of moving parts between its own plants, the idea might well be adopted by groups of co-operating companies. What Ford did

was install roller conveyor tracks in its trailers (lower photograph), and then set up sloping loading and unloading docks (upper photograph) equipped with similar conveyors. Standard racks are used, but special skids were designed to fit tracks. Result: materials roll in and out at a fast clip (a 30,000 pound load can be put aboard a trailer in ten minutes) and with little effort.



and also for a good many others.

According to Laros chemists, industrial dextrans will increase the adhesive properties of printing inks and the workability of drilling muds. In addition, because dextrans are water-soluble, inert, and substantially non-flammable, they open up possibilities for production of temporary films and coatings to protect delicate finishes during processing—coatings that can be readily washed off when their job is done.

Several dextran ethers and esters, on the other hand, are insoluble, and might well prove useful in formulating plastic films and molding compounds.

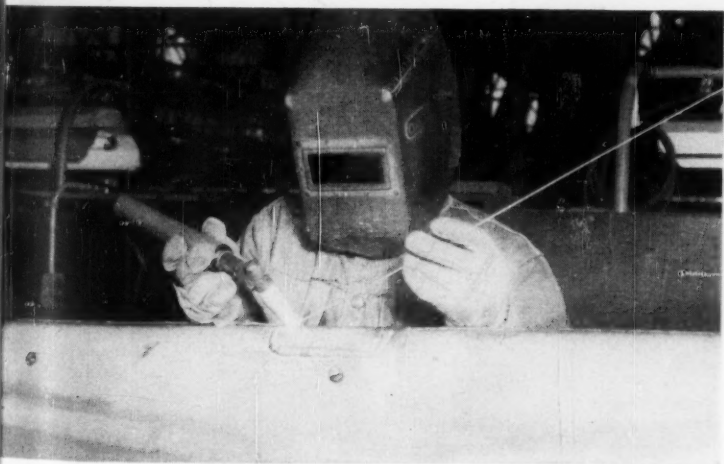
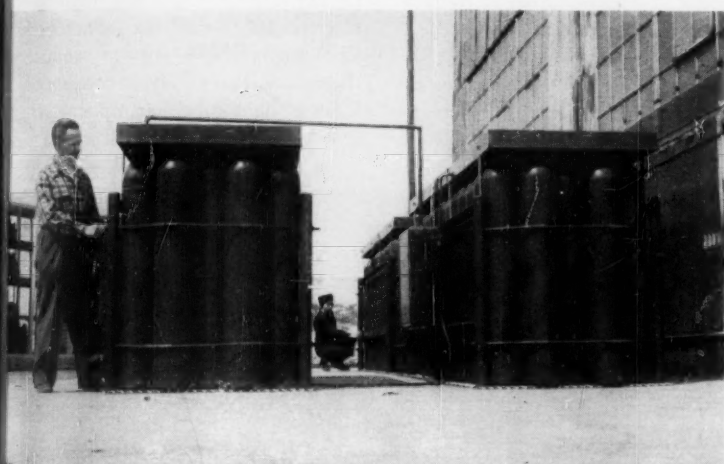
Information on these and other industrial jobs for dextrans may be obtained from the Chemical Divi-

sion, R. K. Laros Company, Bethlehem, Pa.

### In brief

- A brand new line of tungsten carbides promises greatly increased tool life on tough metal-cutting jobs. Carboloy Department of General Electric Company, Detroit, Mich., reports that its Grade 370, the first of its new "300 series" of steel-cutting carbides, will take cuts as heavy as half an inch at speeds of 100 feet or more a minute and resist deformation at temperatures as high as 1,800° fahrenheit. It's suggested for use in machining, shells, car wheels, and other forgings and castings.

- Chromizing, a process for chro-



### Safe but handy

This new argon gas storage set-up, built by Linde Air Products for Ryan Aeronautical Company, shows how it's possible to keep a potentially dangerous material at a safe distance without sacrificing availability. The system, consisting of 186 steel cylinders, mounted in three banks, serves

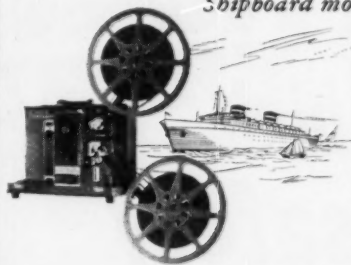
85 inert gas welding stations similar to the one pictured in the lower photograph. The system supplies gas at constant pressure, eliminates the frequent interruptions necessary to change individual cylinders, and saves gas previously wasted because such cylinders could not be fully drained.

## tips on Better Selling, Training, and Demonstration through photography

NO. 4 OF A SERIES

*A few examples from the files of Kodak Audio-Visual Dealers*

### Shipboard movies stay on even keel



Fading of sound and picture as a result of voltage drops plagues many shipboard movies. A leading steamship line\* found that the 16mm. Kodascope Pageant Sound Projector performed splendidly even when voltage dropped sharply and installed Pageants on its ships. The Pageant's superb optical and sound systems and permanent lubrication assure dependability—so vital where service facilities are not immediately available.

### Photography saves time in railroad maintenance



Engineering-department heads of an eastern railroad\* take their own Kodachrome slides—to check on bridge construction and maintenance of way. Transparencies are identified and dated. When alterations or repairs are necessary, the slides are projected with a desktop Kodalight Table Viewer to help determine procedure. Photos also aid in judging effectiveness of paints, weed-control measures, and other maintenance-of-way problems.

### Utility makes own engineering and public-relations films



A western public utility\* uses a Cine-Kodak Special II Camera to record the progress of its construction work, making films that are valuable as engineering aids. It also has produced two highly successful sound-and-color public-relations movies: "Water in the West" and "Streamlined Montana."

### How car manufacturer presents new models



\*Name on request

These are but a few examples of Kodak Audio-Visual products at work in business and industry. Your Kodak Audio-Visual Dealer will be glad to demonstrate their uses to you. Use check slip below.

### BUSINESS FILMS . . . demonstrate, train, dramatize, sell

**EASTMAN KODAK COMPANY,** Dept. 8-V, Rochester 4, N. Y.

Please send me name of nearest Kodak Audio-Visual Dealer; also complete information on the products checked:

☐ 16mm. motion-picture cameras ☐ 16mm. sound projectors  
☐ miniature still cameras ☐ color-slide projectors and table viewers

NAME \_\_\_\_\_ POSITION \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_  
(Zone)

**Kodak**  
TRADE MARK

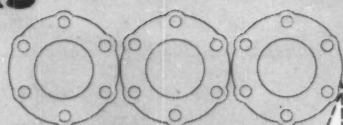
# LESS SPACE!

**extra high  
safety  
factor!**

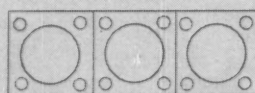
## NEW **T-J** **Spacemaker** **AIR CYLINDERS**

These new T-J Cylinders *save up to 40% in mounting space*—with streamlined design that eliminates tie rods. They're *super rugged*—extra high safety factor . . . solid steel heads . . . heavy wall, precision honed, hard chrome plated, seamless steel body . . . leakproof cylinder head to body construction . . . heavy duty, hit-tensile, hard chrome plated piston rod.

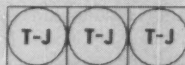
Available with the new T-J Super Cushion Flexible Seals which insure positive cushion with automatic valve action for fast return stroke. Many standard sizes and styles . . . for pushing, pulling, lifting, clamping or control jobs. T-J dependability. Write for bulletin 8152 The Tomkins-Johnson Co., Jackson, Mich.



CIRCULAR HEADS  
WITH TIE RODS



SQUARE HEADS  
WITH TIE RODS



T-J SPACEMAKER . . . provides additional room for adjacent equipment without sacrificing strength.

**SPACE  
SAVED**

**37 YEARS EXPERIENCE**



**TOMKINS-JOHNSON**

RIVETORS...AIR AND HYDRAULIC CYLINDERS...CUTTERS...CLINCHORS

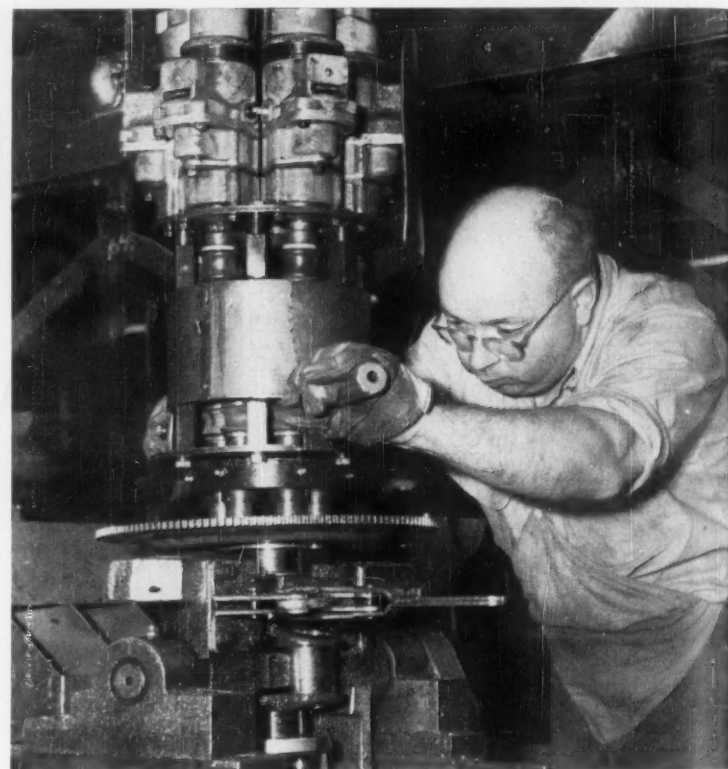
4 Weeks Delivery on the Spacemaker—any style, any stroke, 1" to 3" diam.

mium treatment of steel surfaces introduced a few years ago (see *Modern Industry*, February 1950, page 102), is now moving into a variety of applications where, according to Chromalloy Corporation of New York, 109 West 64 Street, New York 23, N. Y., it provides a combination of heat, wear, and corrosion resistance, plus an attractive appearance. Products now being "Chromalloyed" include heat shields for arc lights and rocket motors, die and tool components, structural parts for wire drawing machines, textile equipment, and extruders, sheaths for electric space heaters, fasteners, and powder metallurgy parts for electrical as well as aircraft equipment. The process involves transformation or impregnation of the steel surface through heating in a sealed retort in contact with a chromium-rich powder.

• A sextet of quality slogans comes from Firestone Tire & Rubber Company which has just completed

a slogan contest to build quality-consciousness (and sales-consciousness) among employees. The grand prize winner, "Quality must be built in, to stand out," points up a particularly important lesson. Others: "You can always sell in quantity if you have quality." "Quality has converted more buyers than talk." "It's only good if you make it so." "It's the push behind quality that pulls the sales."

• The textile industry—and perhaps other processors of sheet materials as well—can now take advantage of a photoelectric scanning device for knitted fabrics developed by Celanese Corporation of America, 180 Madison Avenue, New York 17, N. Y. The company is offering to license its patents on a royalty-free basis and has made arrangements with the Photobell Company of New York to produce the device. Essentially, it consists of a lamp, phototube, and optical system mounted on a small carriage



*Better than six times better*

This Ingersoll-Rand multiple nut runner sets six bolts at a time instead of one; but that's only part of its value. At Cadillac, where this flywheel assembly job is being performed, foremen say this combination tool—and other multispindle, air-powered tools designed by Ingersoll-Rand for other

assembly jobs—requires a lot less maintenance than single-spindle tools did. Sockets used to be changed after two shifts; now, they've been changed only once in a year. Work quality is better, too. Multiple air sources used for the new tool make it easier to hold torque constant.



# PUMPS

## for INDUSTRY

### FLUID POWER PUMPS

The most comprehensive range of types, capacities and pressures in Hydraulic Pumps for industrial equipment, presses, machine tools, materials handling,

metal working, mining, petroleum, gas and aviation applications. Hydraulic Motors, Cylinders and Valves to develop complete Hydraulic circuits.

### LIQUID HANDLING PUMPS

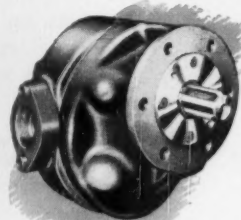
An exceptionally broad range of types, sizes and special constructions to handle virtually "any sub-

stance that will flow through a pipe" including: syrups, acids, sludges, slurries, asphalt, bunker fuel, etc.

### VACUUM PUMPS

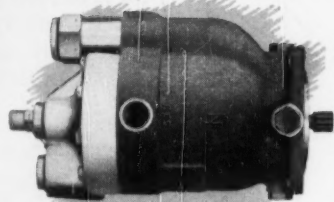
High Vacuum Pumps for laboratory, electronic, atomic research, biological and other chemical processing,

vacuum refining of metals, de-aerating, dehydration, vacuum drying, refrigeration, etc.



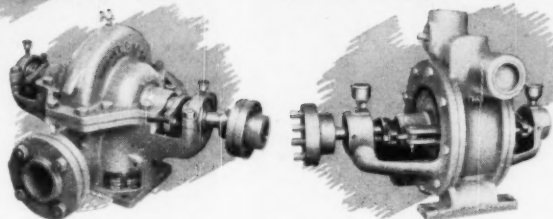
#### HYDRECO GEAR TYPE PUMPS

Reversible and non-reversible. Gear type pumps in exclusive FOUR-BOLT design... capacities from .5 to 130 gpm and operating pressures to 1500 psi... flange or foot mounted... furnished with keyed shaft with spline shafts optional. Also dual and tandem models.



#### STRATOPOWER PISTON TYPE PUMPS

Axial reciprocating piston type... constant or variable delivery with capacities of .25 to 10 gpm at nominal speeds of 1500 rpm with maximum of 4500 rpm... working pressures to 3000 psi... direct engine and individual electric motor driven models.



#### AURORA CENTRIFUGAL & TURBINE PUMPS

Deep well, sump, drainage and condensation return units, household water systems. Industrial low and high pressure liquid handling pumps. Direct motor and countershaft driven horizontal and vertical models. Capacities 3 to 7500 gpm.

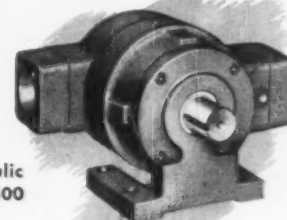


**THE NEW YORK AIR BRAKE COMPANY**  
230 PARK AVENUE • NEW YORK 17, N. Y.

#### DUDCO

#### DUAL-VANE TYPE PUMPS

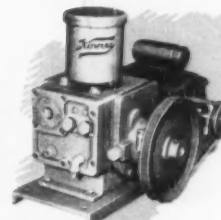
DUDCO Pumps provide a broad range of sizes with capacities to 120 gpm and pressures to 2000 psi. Also available in dual units operating from a single drive. Hydraulic motors with starting torque outputs to 14,400 lb. in.



#### KINNEY

#### VACUUM PUMPS

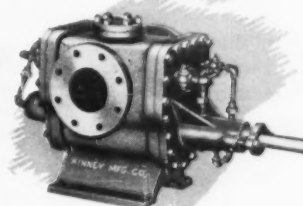
Single stage models to produce absolute pressure readings of 10 microns (.01 mm Hg.)... compound pumps producing readings of .2 microns (.0002 mm Hg.) or better. These Kinney High Vacuum Pumps are available in sizes for laboratory as well as high production use.



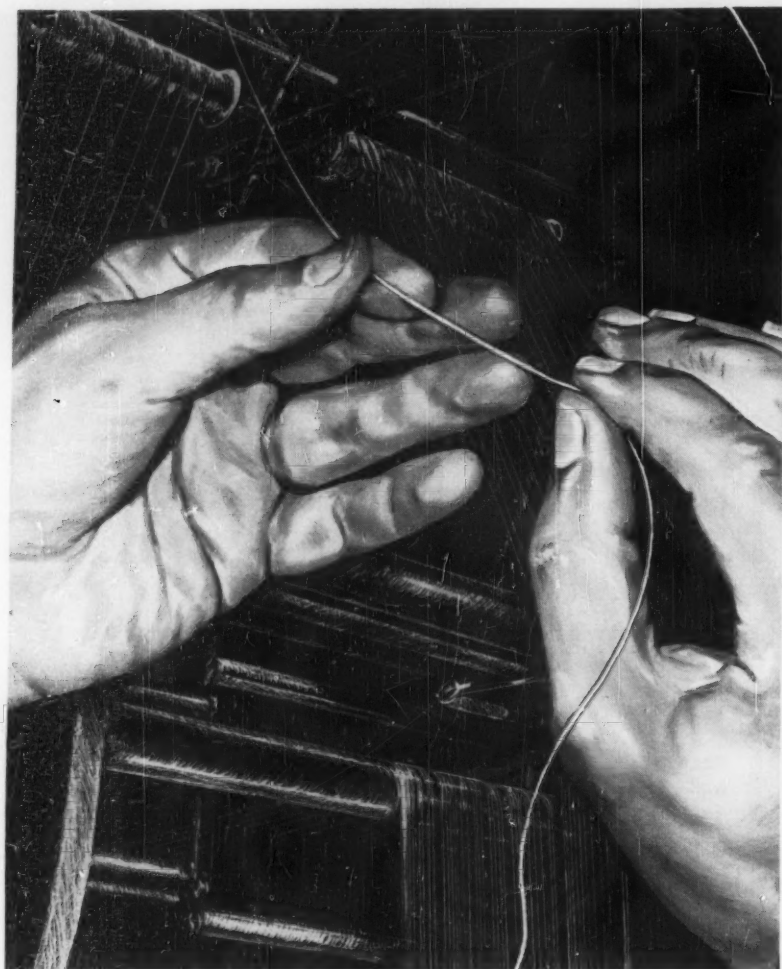
#### KINNEY

#### LIQUID HANDLING PUMPS

A complete range of sizes in Rotating Plunger and Herringbone Gear Pumps to handle light or heavy liquids, from gasoline to molasses. Available in plain or steam jacketed models.



THE NEW YORK AIR BRAKE COMPANY  
230 Park Ave., Dept. DR, New York 17, N. Y.  
Gentlemen: Kindly send me additional information on:  
Hydraulic Pumps ☐ 1000 psi ☐ 2000 psi ☐ 3000 psi  
Liquid Handling Pumps ☐ Vacuum Pumps ☐  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



## Put Your Textile Problem in These

### "Thinking Hands"

You've known people who seem to "think with their hands" . . . so swift are they to follow thought with dexterous action. Here at Schlegel we place great value on "thinking hands" . . . the highly-trained hands of Schlegel's textile engineers . . . the skilled hands of Schlegel's textile craftsmen.

When you outline an industrial textile requirement to Schlegel, our "thinking hands" go to work — experimenting and designing and testing with modern textile equipment — until we are able to present not merely a plan, but a completed *product*. A product created to meet your specific needs — and capable of being produced in volume in Schlegel's own plants.

Do industrial textiles enter into your company's plans for tomorrow? Schlegel's research and production facilities, backed by 68 years of experience, are at your service. We cordially invite your inquiry.



For the AUTOMOTIVE industry — Schlegel certified woven wool pile lining, weathercord, assist straps, robe rails, and other textile interior trim • For the AIRCRAFT, RAILROAD, and SHIPBUILDING industries — wool pile lining in metal-contained channels • For HOMES and COMMERCIAL BUILDINGS — Schlegel Adjusto-Seal weatherstripping • For the MEDICAL SUPPLY, METAL and WOODWORKING, OFFICE SUPPLY, and RAILROAD EQUIPMENT industries, and for NATIONAL DEFENSE — various woven textile specialties.

that moves back and forth across the fabric about an inch from the knitting needles; plus a power supply, amplifier, and drive mechanism. When all is going well, the cloth reflects the lamp's light back to the phototube, maintaining a constant level. When a defect appears, though—a broken thread, for instance—light reflection is decreased, and the scanner responds by shutting down the machine. Advantages are sensitivity, low maintenance, and the fact that the device does not touch the fabric.

### *Yours for the asking*

Here are new and helpful publications on methods and materials, offered free of charge to executives who write on company letterhead. Requests should be addressed to sources indicated.

**Lithium.** Applications for lithium and its compounds—in air conditioning, storage batteries, ceramics, paint formulation, refrigeration, welding and brazing, and for such new applications as absorption of carbon dioxide, are outlined in a special issue of *Foote Prints*, which also contains an extensive bibliography. It's called, *Industry Looks at Lithium*, Foote Mineral Company, 18 West Chelton Avenue, Philadelphia 44, Pa.

**Cellulose acetate.** A completely revised and greatly expanded 30-page data book provides definitive

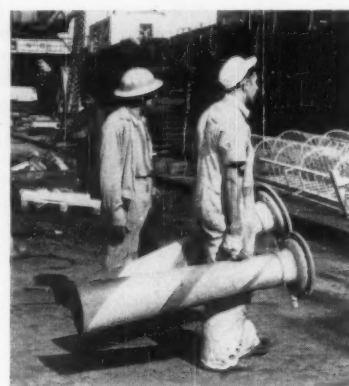
information on the properties of this valuable resin and its use in molded products, film, synthetic fibers, lacquers, paint removers, and so on. *Cellulose Acetate*, Hercules Powder, Wilmington, Del.

**Electronic weighing.** How to use electrically sensitive load cells to weigh the contents of tanks, bins, and hoppers. Eight-page brochure diagrams applications, lists facts needed to design measuring and recording setups. *SR-4 Electronic Weighing* (Bulletin 4106). Baldwin-Lima-Hamilton Corporation, Philadelphia 42, Pa.

**Power cable.** Twenty-five years of experience with rubber-insulated power cable are packed into a 128-page book that covers everything from aluminum conductor conversion factors to safety tags and splicing techniques. *Rubber Insulated High Voltage Power Cable*, Okonite Company, Passaic, N. J.

**Rubber bearings.** How to use water-lubricated rubber bearings in pumps, agitators, washers, and the like. *Cutless Rubber Bearings*, Lucian Q. Moffitt, Inc., 333 South Main Street, Akron, Ohio.

**Power generation.** Sound advice on in-plant power generation comes in the form of a pocket-sized booklet that tells when to consider your own electric plant ("Don't try to compete with public utility power. Do consider your own plant as a



### *Carrying air to the job*

Those peppermint-stick cylinders the workman is carrying (left) will keep him safe when he goes to work (right). They're portable air-movers, built by Mine Safety Appliances Company, and here used by Dravo Corporation on a barge-construction job.



The air-movers weigh only 31 pounds can be hooked up to standard compressed air or steam supply. In industrial plants, they can be used to protect workers during painting—and to dry paint after it's applied; to exhaust dusts or fumes, and the like.



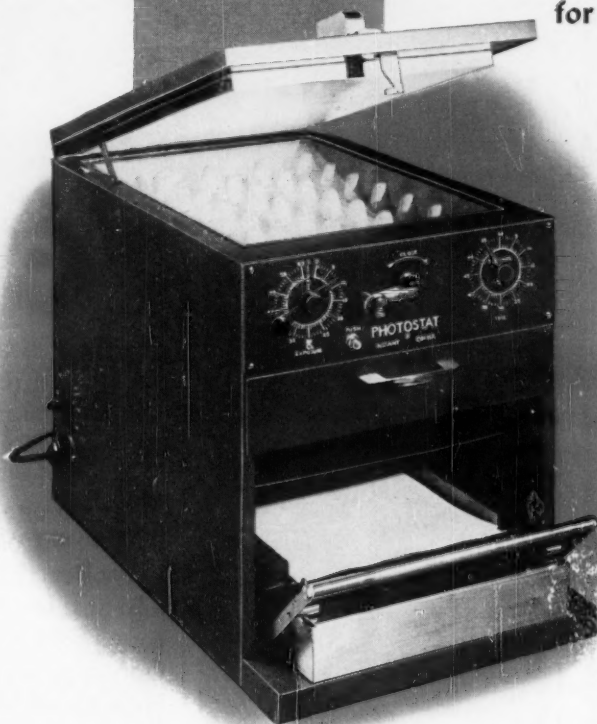
# PHOTOSTAT

## CORPORATION...

now gives you the answer to your office copying problems in this small inexpensive machine designed to use the EASTMAN KODAK CO.'S amazing new VERIFAX process...

## Photostat Instant Copier

for use in any office . . . everywhere!



Here is a small, inexpensive machine which will make three or more black-on-white copies of practically any original up to 8½" x 14" in size in *one minute*, ready for immediate use!

It takes up less than two square feet of space on desk or table . . . it can be used under any normal office lighting at any time by anyone in the office.

The PHOTOSTAT INSTANT COPIER is designed to get the very best results from the new EASTMAN KODAK COMPANY'S VERIFAX process . . . a truly revolutionary method of making copies of anything typed, printed, written or drawn. It is entirely different from, and should not be confused with, any previously known process. No other office copying equipment can equal the versatility and flexibility obtainable with the combination of the new PHOTOSTAT INSTANT COPIER and the VERIFAX process. And it is fully guaranteed by Photostat Corporation!

\*For over forty years, PHOTOSTAT CORPORATION has led the way in the manufacture and marketing of photographic copying apparatus for every type of business use . . . every Federal, State, County and Municipal government need.

The new PHOTOSTAT INSTANT COPIER will be sold and serviced by our field staff from coast to coast and in Canada in the same efficient manner and under the same conditions as now apply to our larger and long established models of photographic copying apparatus.

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You will be amply repaid if you get full details before purchasing any office photo-copying equipment. Write to

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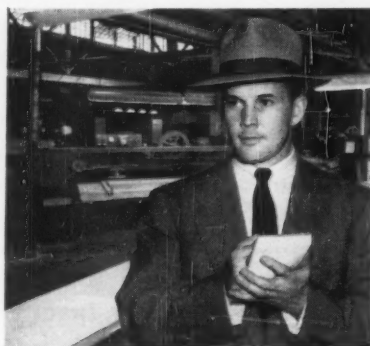
— or any service office in principal cities in the U.S.A. and in Toronto, Canada.



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Ask for his help today — he's an expert on coated abrasives. He'll be glad to discuss the latest grinding and finishing methods with you.



And he'll make a FREE survey of your plant for possibilities of increasing production and producing better finishes at lower costs.

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St. Paul 6, Minn.

Please have your representative explain FREE Plant Survey Service

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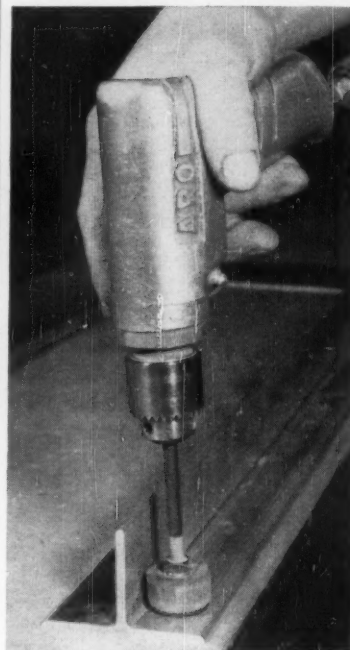


standby source; or if utility power is not obtainable."); which prime mover to use (gasoline, gas, Diesel); whether to select AC or DC. *Electric Generating Plant Blue Book*, D. W. Onan & Sons, Inc., 2600 University Avenue, S. E., Minneapolis 14, Minn.

**Instruments.** Two new data books give detailed technical information on measuring and control equipment: *Pressure and Vacuum Gages (Catalog 7001)* and *Pneumatic Control Accessories (Catalog 8950)*. Both from Industrial Division, Minneapolis-Honeywell Regulator Company, Philadelphia 44, Pa.

**Magnetic materials.** Latest in a series of technical reports on engineering topics (all offered without charge), this one gives a brief history of magnetism, explains magnetic properties. *Ferromagnetism and the Curie Point*, Oklahoma Engineering Experiment Station, Stillwater, Okla.

*Continued on page 134*

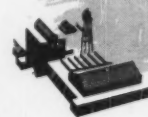


#### Neat finish

A simple but effective tool devised by Consolidated Vultec engineers is saving the company more than 3,000 hours a year in finishing aircraft parts. Previously, a block of wood wrapped in emery paper was used. Now, an air-operated drill fitted with a rubber cylinder does the work. For the operation pictured, an emery paper disc is attached to cylinder's base. For other jobs, the abrasive can be wrapped around the cylinder wall.

*Chicago man says:*

**"Sacramento  
is the  
Prize  
Plum"**



The statement that of a Chicago architect-planner quoted recently in the *San Francisco Chronicle*. He went on to say, "Every large industry now centered in the East will be forced to establish branches on the West Coast." And he told why. For the full text of the *Chronicle* story and for your copy of the booklet, "Industrial Opportunities in the Sacramento Heartland," write the Sacramento Chamber of Commerce or our Industrial Department, with confidence, of course.

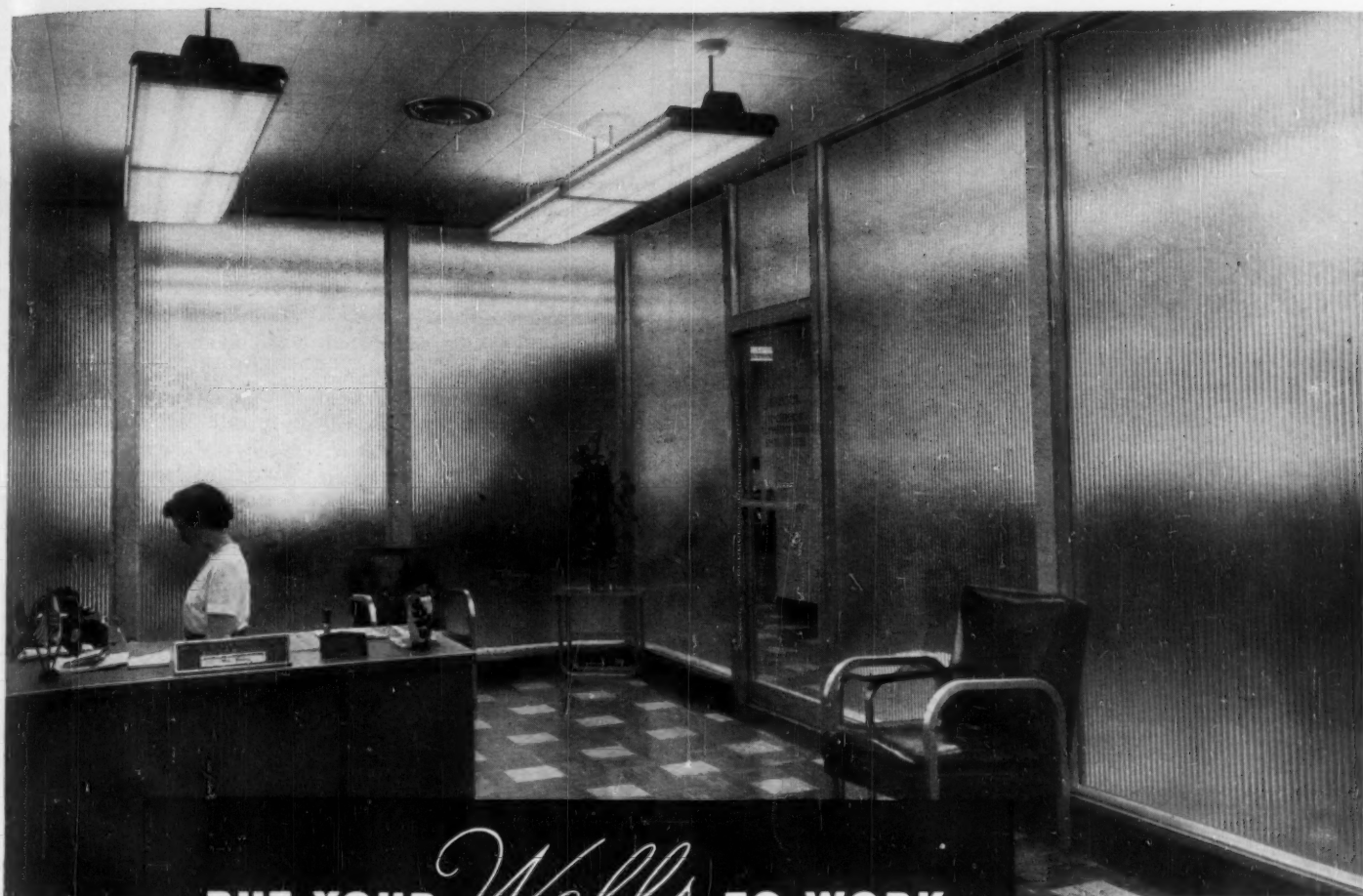
SACRAMENTO MUNICIPAL  
UTILITY DISTRICT

P. O. Box M-2391, Sacramento



THE LAND THE LORD REMEMBERED





## PUT YOUR *Walls* TO WORK

Lustrous 7/32" Broadlite glass glazed in reception room, Purchasing & Administration Service, The Port of New York Authority Building, New York City.

There is utility as well as beauty in these gleaming walls of Mississippi Broadlite glass installed in The Port of New York Authority Building. This reception room glows a friendly welcome to visitors as the translucent glass partitions flood the interior with "borrowed light" from adjacent areas. The glass makes the interior appear larger, friendlier, too, yet assures complete privacy, and the high levels of illumination add to eye comfort and efficiency. In addition these modern glass walls save work. Glass never grows old or dingy...never requires redecorating...wipes shining clean with a damp cloth. Glass will not rot or sag and it is a non-combustible.

In your designs for new office interiors and in remodeling projects, consider the use of translucent, light diffusing glass—the modern material. Put your client's walls to work. Let them enjoy all the benefits that only figured glass can provide. Specify glass by Mississippi. Available in a wide variety of patterns and surface finishes wherever quality glass is sold.



Write today for free booklet, "Figured Glass By Mississippi." Actual photographs illustrating hundreds of uses for this versatile medium.

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and MODERN INDUSTRY

DECEMBER 1953 • 133



**"greatest idea-guide I've seen..."**

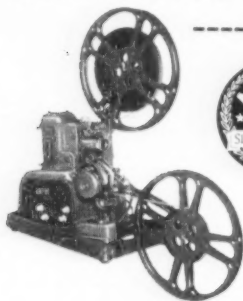
—Frank E. Smith, National Director,  
Blue Shield Medical Care Plans, Chicago

● "Screen Adventures" is a new 16-page book which lists 325 carefully screened and selected 16mm sound motion pictures. It lists titles, running time, gives a subject synopsis, and tells where-to-get-it.

The films are categorized by subject area, and present a "catalog" of material for business meetings, employee showings, club entertainment, education, and many more. *It's yours, free of cost or obligation.* Simply send the coupon for your copy.

**... AND HERE'S THE GREATEST  
MACHINE FOR PROJECTING IDEAS  
YOU'VE EVER SEEN**

The Super-Stylist 16mm sound projector weighs only 32 pounds, complete with carrying case and built-in speaker. Permanently-attached reel arms swing into place in an instant. Sets up in seconds, threads easily, operation requires the flick of a switch!



**AMPRO**

FAMOUS FOR THE FINEST LINE OF  
16mm SOUND PROJECTORS

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Dealer demonstrate the Super-Stylist.

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MI-12-53

**INDUSTRIAL  
METHODS**

*Model plant*

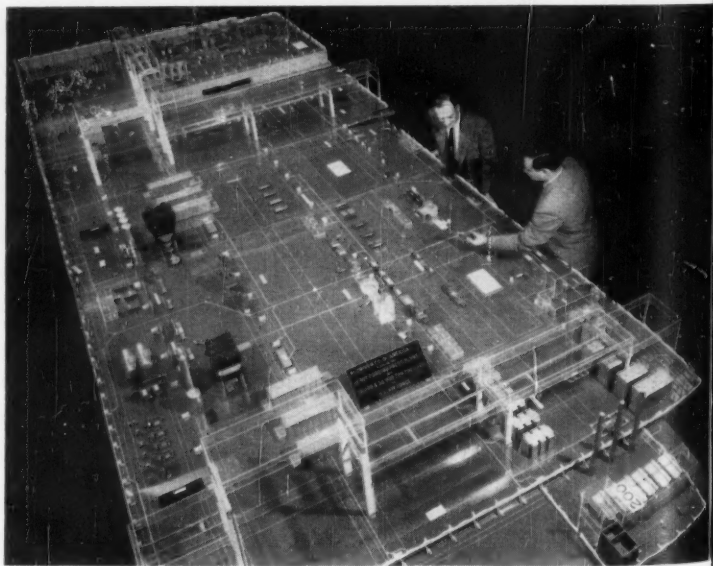
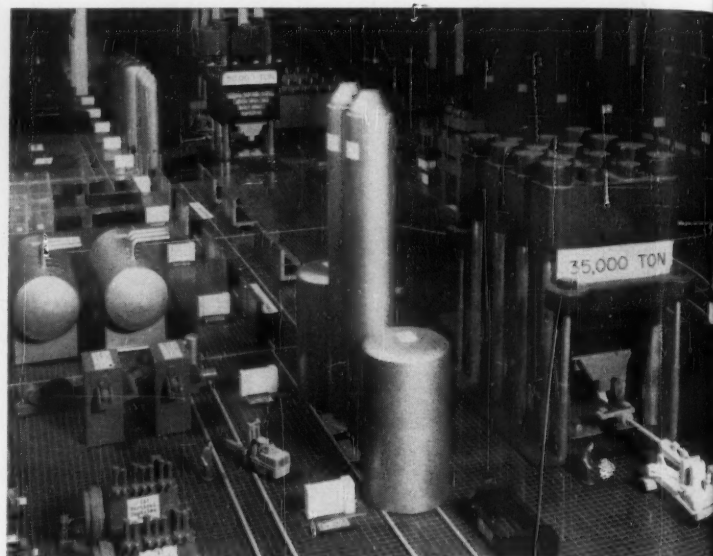
In plant layout, the third dimension is the best substitute for a crystal ball so far invented, as a good many companies can testify.

Use of three-dimensional models, as an extension of flat layout drawings, gives production and materials-handling engineers a real chance to visualize the shape of things to come—and plan in advance for efficient operation. Too, it's a lot easier, and cheaper, to shift around a scale model of a big machine than to try to move that machine once it is in-

stalled—or to pay for the mistake year after year in extra handling and wasted motion.

Such models make it easier to tap the knowledge of foremen, skilled workmen, and others who are not accustomed to visualizing a full-scale plant from a flat drawing. Even layout experts are more likely to make mistakes when they have only a drawing to guide them.

It's not surprising, then, to find more and more companies building three-dimensional models as a first



Advance planning is vital for big machines like these. Alcoa engineers built this model to study layout of Heavy Press Plant. Scale is 1/4 inch to the foot. Complete plan is shown in lower photograph; closeup above.



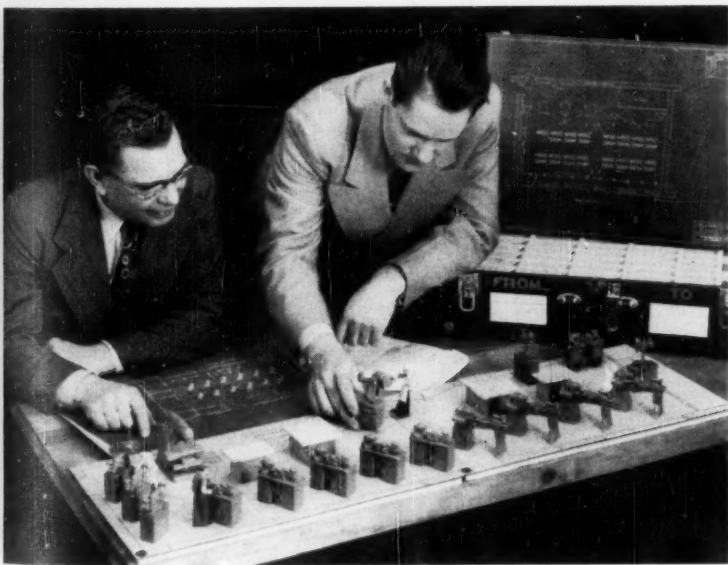
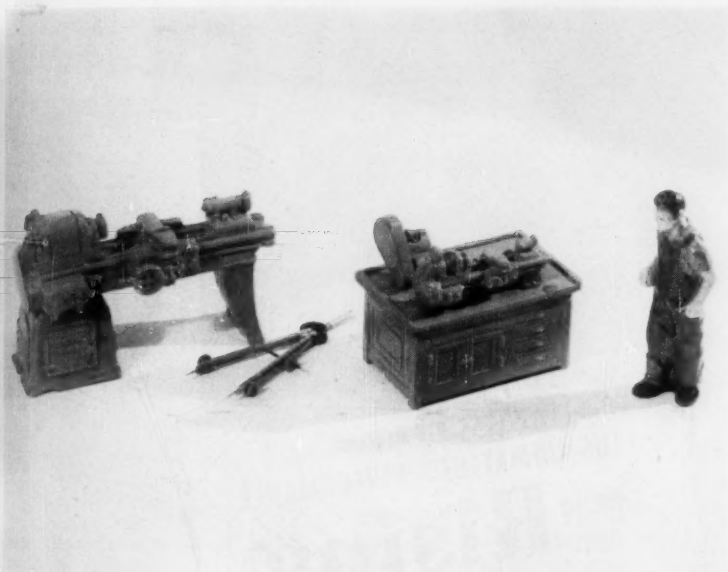
## for model plants

step in revamping old production lines as well as in building new ones.

The pictures (left) show a rather elaborate model built by Alcoa to plan a new heavy press plant. It cost \$6,500—and was well worth it. But most companies will be able to duplicate their plans for a surprisingly modest amount. A number of companies now make and sell scale models of industrial equipment, and offer catalogs of stock items.

In addition, equipment makers

are beginning to offer scale models of their own machines. Pictured below is a new layout kit offered by South Bend Lathe Company on a free-loan basis. It contains models of nine different machine tools, built on a scale of  $\frac{3}{4}$  inch to the foot. And users of laboratory equipment may obtain, without charge, boxlike cardboard models of workbenches and cabinets built on a scale of  $\frac{1}{2}$  inch to the foot, from Labline, Inc., 217 N. Desplaines, Chicago 6, Ill., laboratory equipment maker.

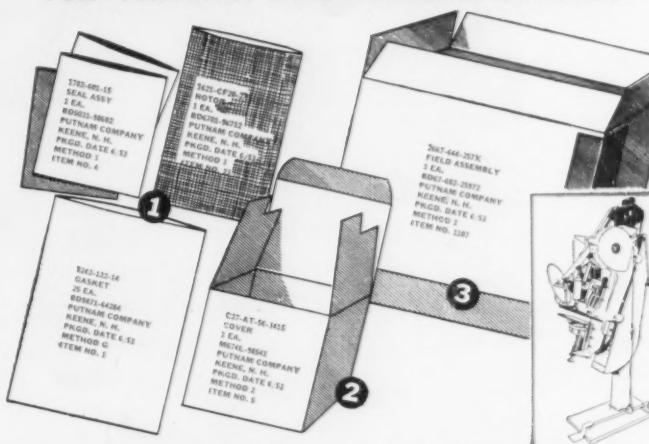


Equipment makers now supply models to aid planning. Pictured here is kit South Bend Lathe Company lends to machine users without charge. Kit contains models (upper photograph), planning boards, instructions for use.

# MARKEM

## SOLVED THIS MARKING PROBLEM

### IDENTIFICATION MARKING FOR CONTRACT AND OVERSEAS PACKING



In contract and export packing of parts, assemblies, etc., certain JAN specifications call for three packaging stages: (1) enclosure in scrim-back or polyethylene lined *heat sealing* envelope, (2) intermediate packing in a folding box, (3) final packing in corrugated carton. Each of these three types of containers must be marked for instant and permanent identification. Many manufacturers, dissatisfied with conventional marking with crayon, stencil, labeling or other form of hand stamping, have not only found great savings in time and money, but also obtained more legible, longer lasting identification using a Markem Method. One Markem machine (with appropriate Markem type and Markem ink) prints desired information on *all* three containers. The vapor barrier of the envelope is not broken. Desired information is changed rapidly. By printing quantities of containers as and when needed, inventory problems are minimized. In this way, the Markem Method insures *positive identification* when the items reach their destination.

# MARKEM

## MARKS THEM ALL



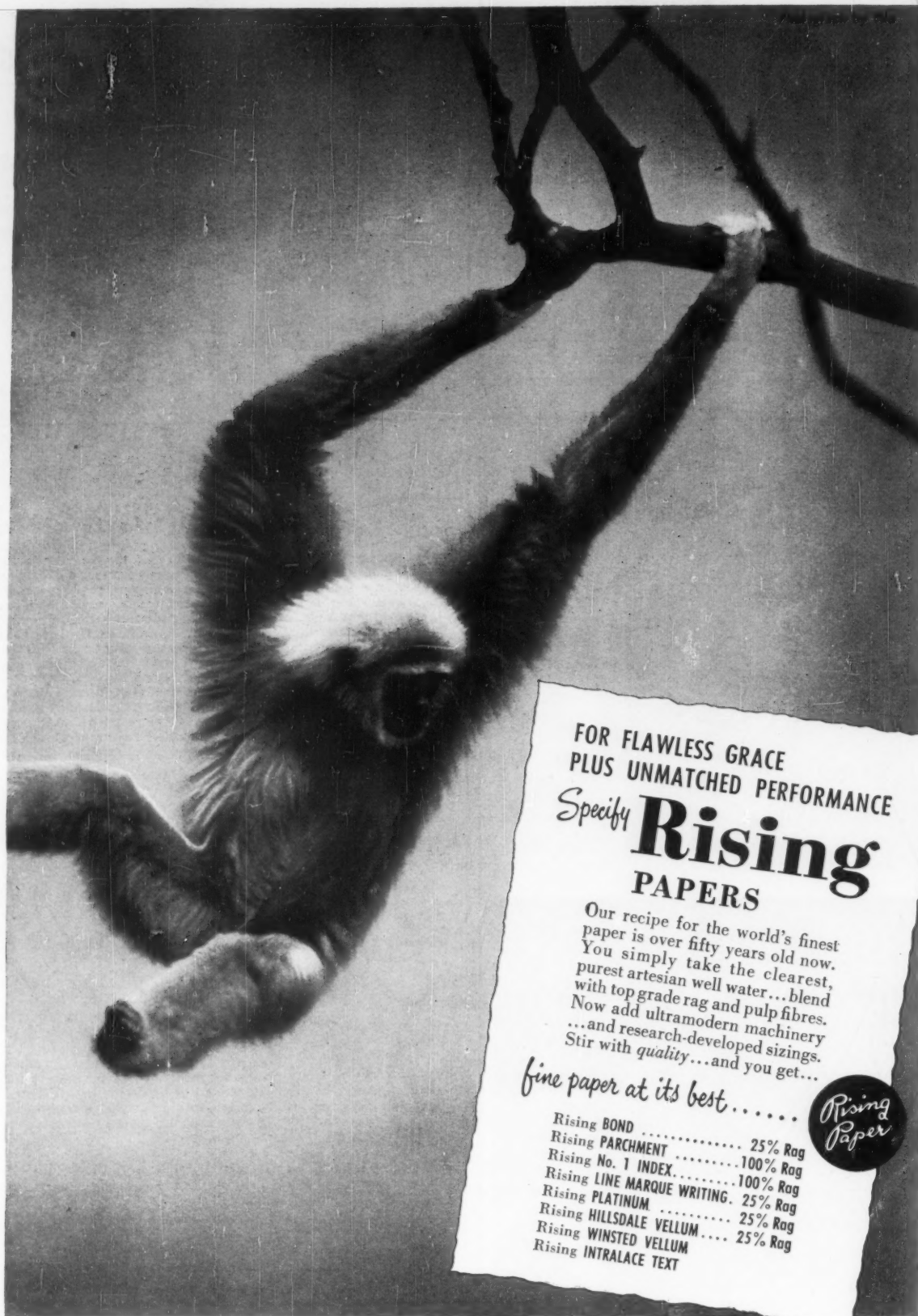
### CAN MARKEM HELP YOU?

Identification printing for contract and overseas packaging is but an example of how Markem solves industry's marking problems. Markem has been providing industry with production techniques and equipment to identify, decorate or designate its products, parts and packages since 1911. Markem also provides technically trained men who are available in your area to assure *continued* satisfaction with Markem methods and equipment.

When you have a marking problem, tell us about it and send a sample of the item to be marked. Perhaps a complete Markem Method has already been developed to solve your problem. If not, Markem will work out a practical solution.

Markem Machine Company, Keene 16, N. H., U.S.A.





FOR FLAWLESS GRACE  
PLUS UNMATCHED PERFORMANCE

Specify **Rising**  
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Our recipe for the world's finest paper is over fifty years old now. You simply take the clearest, purest artesian well water...blend with top grade rag and pulp fibres. Now add ultramodern machinery...and research-developed sizings. Stir with *quality*...and you get...

*fine paper at its best.....*

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Rising PARCHMENT .....	100% Rag
Rising No. 1 INDEX .....	100% Rag
Rising LINE MARQUE WRITING .....	25% Rag
Rising PLATINUM .....	25% Rag
Rising HILLSDALE VELLUM .....	25% Rag
Rising WINSTED VELLUM .....	25% Rag
Rising INTRALACE TEXT .....	

*Rising Paper*

RISING PAPER COMPANY • HOUSATONIC, MASSACHUSETTS





DEVANEY PHOTOGRAPH

THE American male (and female, too, for that matter) is rapidly becoming a "jack of all trades," although not in the professional sense. From puttering around in the garden or fixing a leaky faucet he has graduated to the rarified air of handling a lathe or refinishing a cabinet. Brought about by rising professional labor costs and the shortening of the work-week, the post-war phenomenon of the "Do-It-Yourself" market has unveiled a new industry with great potential in the ever-expanding economy. With such a new industry come problems in advertising, selling, production, and distribution, the solution of which may open new approaches in these fields.

## Putting the "DO" in "Do-it-Yourself"

ALONZO G. DECKER

*President, The Black & Decker Manufacturing Co.*

TWENTY-FIVE years ago—it was "Let George do it!" To-day—as an indication of changed attitudes as well as changed economy—it's "Do-It-Yourself!" Years ago a person wanting his house painted, shelves installed, tile floors laid, or similar improvements or repairs done to his home, hired a professional or "handy-man" to do the job. To-day, even if the professional can be found, his price is so high that the average person cannot easily afford his services. As some one so aptly put it, "The \$75-a-week clerk cannot afford the \$150-a-week professional." And the handy-man is this generation's "vanishing American."

The 40-hour week has given people more leisure time. The skills gained in industry and the armed services by both men and women during World War II have made "Do-It-Yourself" represent a vast new market for manufacturers of tools, paints, building materials, appliances, and so on. Even the rise of the "home permanent" can be clearly attributed to the desire and necessity of "Do-It-Yourself."

Entering such a vast market—virtually the whole American community—presents challenges to the manufacturer who previously had been selling to specialized markets. To mention

only a few of these would include new channels of distribution, new manufacturing methods, different packaging, increased sales force, altered advertising and sales promotion emphasis, and so on.

Here are some of Black & Decker's experiences in meeting the challenge of the "Do-It-Yourself" market. We made our first portable electric tool—a ½-inch drill—in 1916. At first we hitched our wagon to the rising automotive star, designing and building tools for the automotive service market. Gradually we expanded into the industrial field, so that by the middle 1920's we were making a diversified line including drills, sanders, portable grinders, bench grinders, screw drivers, valve refacing equipment, and so on. By the start of World War II, we were making over 100 different portable electric tools, plus several thousand accessories which multiplied the uses of these tools. Aggressive exploration and cultivation of new markets, both at home and abroad, earned rapid growth of sales and organization and won the title "World's Largest Manufacturers of Portable Electric Tools."

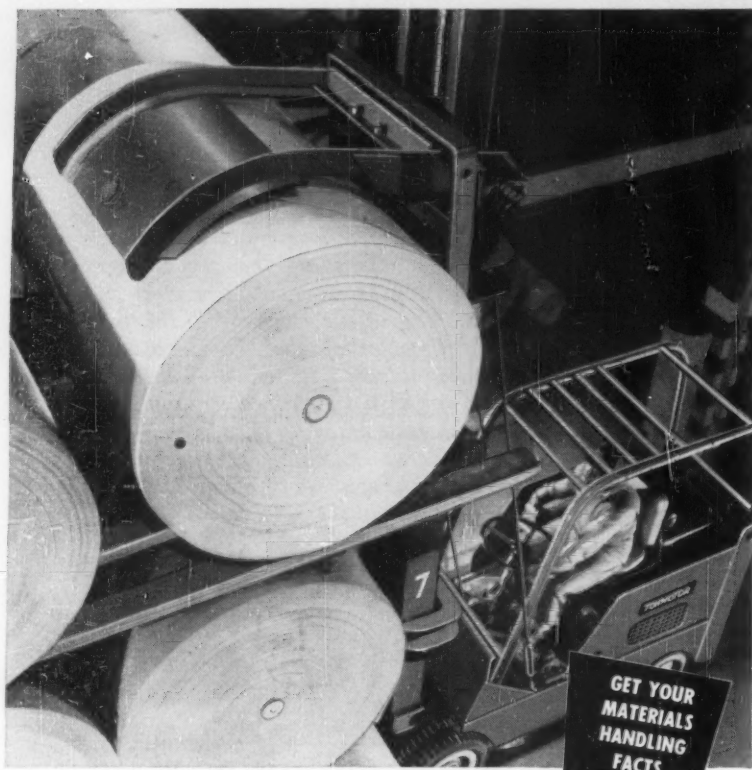
All our production during this time was marketed through industrial distributors and auto-

motive jobbers. Our own sales force became skilled in solving tough production and maintenance problems for our distributors' customers. This, plus quality-made tools that would stand the gaff of hard use over a number of years and a network of company-owned and operated repair branches located in major cities throughout the nation where service could be obtained rapidly and at fair rates, helped the company to grow at a satisfactory rate.

Even in these early days, Black & Decker saw the possibility of a market for electric tools in homes and farms. We advertised "Electric Tools on the Farm" in the *Saturday Evening Post* of September 1927 and in 1926 we introduced an "electric tool chest" with a selection of useful accessories that in to-day's market would be a Do-It-Yourself "natural." It was not entirely successful mainly because it was not marketed through channels of distribution that would reach the average consumer.

During World War II we seriously considered introducing tools which might appeal to the average home owner. Remembering the lessons of World War I, we felt there might be a temporary industrial recession after peace—so we founded a Post-War Planning Committee to

## It's Hard to Compete with a TOWMOTOR Equipped Plant



Towmotor equipped with Revolving Roll Clamp stacks 1½-ton roll of paper on fourth tier at plant of Gibraltar Corrugated Paper Co., Inc.

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Towmotor Mass Handling offers tremendous savings in time and labor all through your plant. Fifty to 60% is commonplace. Even up to 98% is not unheard of. And because TowmoTorque Drive, and Power Steering, and new "Cushioned Power" Diesels, and many other Towmotor features keep upkeep down, *you* keep most of what you save!

That's the overwhelming consensus of opinion among operating and maintenance men. When you consider original investment, plus cost of operation and maintenance, Towmotor handles more tons per dollar! Send today for book on TowmoTorque and Power Steering. TOWMOTOR CORP., Div. 8912, 1226 E. 152nd St., Cleveland 10, Ohio.

**TOWMOTOR**  
THE ONE-MAN-GANG®

**FORK LIFT TRUCKS and TRACTORS**

SINCE 1919

TOWMOTOR ENGINEERED FOR QUALITY PERFORMANCE

## THE "DO" IN "DO-IT-YOURSELF"

Continued

investigate and recommend steps that we might take to lessen our peaks and valleys when the shooting ceased. Out of this committee came the plan to introduce a supplementary line of portable electric tools which would be priced to fit the average man's pocketbook, yet have the basic quality which had been so responsible for the company's success in the industrial and automotive fields.

The fondest dreams of this committee could never have approached the goals we have already met and passed with this new line of tools. Five years after the introduction of the first unit in the line—a ¼-inch drill—the "one-millionth tool" of this particular model was assembled and sold. This record was accomplished while we continued to produce and sell our diversified line of industrial and automotive tools and accessories.

On the debit side of the ledger were limited manufacturing space; a sales force primarily trained to sell to the industrial and not the general consumer market; advertising, sales promotion, packaging, and so on, geared to hit industrial-type users. On the credit side of the ledger was a skilled work force—engineers, production men, and salesmen—that was completely versed in the uses and applications of portable electric tools; a trade name built up over the years, which was synonymous with quality products; and a network of distributors of the highest caliber and reputation in their marketing areas.

Our most immediate problem, as is true with any company contemplating moving into new markets, was to obtain appropriate and adequate distribution to the desired market. The natural outlet for "Do-It-Yourself" items is the hardware store which in turn buys from the hardware wholesaler. Because of the vast multitude of products and items that the wholesaler must stock, the hardware field is notoriously hard to enter. Also, there are less than 600 general line hardware wholesalers in the United States. Fortunately for us, however, this did not pose too large a problem, as many of the wholesalers also had industrial departments that were already handling our products and

were completely familiar with us and our methods of doing business.

Our next big problem was limited manufacturing space, plus limited room for efficient expansion on our existing site. This would have been solved a lot more easily if the demand for our new home line had not skyrocketed. Fortunately, we had no post-war conversion problems, as our products are needed in war as well as in peace, but the huge demand on both lines taxed our facilities to the utmost. Only through the continual purchase of the most modern production machines, installation of additional machines where space permitted, adoption of improved machine load and scheduling procedures, and the constant study and research of improved manufacturing methods in all departments, were we able to steadily increase our output. By 1949, we found we were producing more than twice as much as our supposed capacity for which the plant had been designed 20 years before.

The "Do-It-Yourself" market, however, has no room for the laggard. To keep pace with the ever-spiralling demand for all sorts of tools to ease and speed up the home owner's tasks, it became obvious that our only salvation was additional plant space in a location that permitted planned expansions as the business continued to grow. Such a location which also had a good labor market, adequate transportation, and supply facilities was finally found after a year's search. A 185-acre farm, some 25 miles from our Towson, Md., headquarters, was purchased. On this site we erected a modern 110,000 square foot one-story plant, which was designed to be expanded in stages up to one million square feet. We moved much of our space-consuming equipment such as punch press, sheet metal, hammer tool forging, large tool assembly, and motor winding departments to the new plant. Within a year, even this major addition of productive facilities proved inadequate and a second unit totalling 126,800 square feet has just been completed at our Hampstead, Md., branch plant.

With such rapidly increasing markets in all lines of our business,





OMEDAY . . . it will be for real!

Building with blocks is as much a part of a young boy's life as baseball will be in his teens. Blocks—one on top of the other—to satisfy the typically male urge to create.

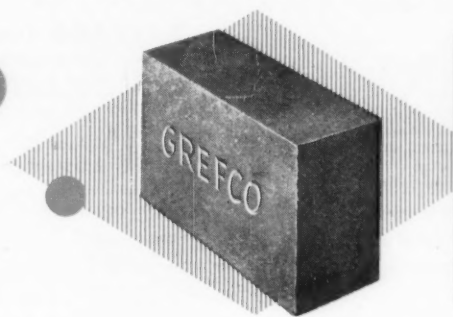
As the years roll by, this boy will go on to build bridges or buildings, to make his career in the laboratories of chemical research—or to watch steel being born from ore and earth.

Whatever his future, there will be refractory brick to help him do his job. Blocks of brick

to line the furnaces and heat containing vessels—in virtually every step of industry.

There would be no processed raw materials, no production, no living such as we know it but for refractory products which Grefco furnishes in quality and quantity to keep the nation on the move.

To the boy above, a very Merry Christmas and a great many Happy and Prosperous New Years. In his hands lies the future of America.



**GENERAL  
REFRATORIES  
COMPANY**  
Philadelphia



Tuesday, October 21, 1952 THE MIAMI HERALD 21-A  
Financial News

## Winn & Lovett's Earnings On Rise

By United Press  
JACKSONVILLE—Winn & Lovett Grocery Co. reported for the quarter ended Sept. 20 sharply higher earnings, reflecting economies achieved through mechanization in warehousing and merchandise handling.  
Net for the first quarter of the current fiscal year, totaled \$600,597, or 44 cents a share on common, compared with \$409,342 or 29 cents in the same quarter last year. Net sales of \$41,851,672 compared with \$36,763,499.  
As of Sept. 20 the food chain had in operation 181 retail outlets in Florida.

THIS NEWS CLIPPING suggests one way to make more money. Winn & Lovett's "sharply higher earnings" prove that a dollar saved is still a dollar earned.

"Mechanization" saved more than 50% of Winn & Lovett's handling bill. "Mechanization" in this case means a fleet of CLARK fork trucks and towing tractors, operated on a well-planned schedule. These savings, together with increased retail volume and retail operating improvements, resulted in "sharply higher earnings," and the company made financial headlines.

The moral of this story is this: Call in your local CLARK dealer to discuss ways to cut handling costs. That's what Winn & Lovett did, and look what happened!

## CLARK ELECTRIC, GAS, DIESEL, L.P. GAS FORK TRUCKS AND POWERED HAND TRUCKS - INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 18, MICHIGAN

Please send: ☐ Condensed Catalog ☐ Have Representative Call ☐ Driver Training Movie

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Firm Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

# How To Make More Money

an expanded sales force was needed. New men had to be recruited and trained. Older salesmen who were thoroughly familiar with the industrial and automotive after-market had to learn the particular problems of the hardware field. They also had to reacclimate themselves to the "hard sell" of days before the war and learn new merchandising methods that would assist our wholesalers and their dealers to move products over the counter. Sales management, of course, had to lead the way, but it takes time to learn all the ins and outs of a new field.

### Closer Supervision

To keep an expanded sales force within manageable bounds, we cut the size of existing branch territories so our branch managers could more closely supervise the work of their salesmen, and give more intensified attention to distributors and wholesalers in each area. This, of course, created more branch territories and new branch managers. In the past, the branch managers had reported directly to the sales manager at Towson, but with the

addition of new lines, new markets, new distribution, it became impossible for this one man alone to give the top-level guidance and assistance that the branch managers needed. Therefore, six district sales managers were appointed for the US and Canada, who could give on-the-spot assistance when the branch manager so requested, plus feeding important information and advice to the general sales manager who then was released for the overall planning which is so needed for any integrated sales plan.

We have always believed that in selling any product advertising and sales promotion activities must play a most important part. In 1921 we expanded our advertising from purely business or trade publications to include one of the large mass consumer-type publications—although we were selling industrial products. Many people, at that time, thought we were crazy, yet we have never regretted the decision. We found that we were able to develop new markets for our products, increase distribution, and help finance the company with such a program.

Marketing a consumer product



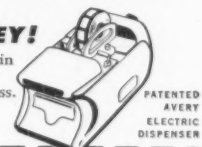
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THE EASIEST AND  
MOST ECONOMICAL  
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- GUARANTEES
- "BUY" FEATURES
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- WARNING
- DIAGRAMS
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- PRICES

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608 S. Dearborn St., Chicago 5 • Offices in other principal cities

- ☐ Please send case histories and samples
- ☐ Tell us about your electric label dispenser
- ☐ Have the local Avery man call

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_



A report from the laboratories of Remington Rand on:

## Electronic developments for business and science

Much of the popular talk about "giant brains" has actually obscured the work which electronic computing systems *are doing now* . . . to answer the pressing problems of business record keeping and control as well as scientific and mathematical computations.

An electronic computer system can process a large volume of data faster and more economically than any other method. Only one operation is required for a complicated program of computing, selecting and filing information. Routine decisions can be made automatically on the basis of instructions given the system. Exceptional conditions requiring management attention can be automatically signaled.

Remington Rand presents here some practical electronic devices which may be applied profitably today:

### High-speed tallying

This electronic storage system is a new Remington Rand development. For John Plain & Co., a large wholesale mail order firm, it produces up-to-the-minute inventory analysis by item under the most demanding conditions of seasonal and shifting demand. Just ten order clerks — working at 10-key input systems to a magnetic drum memory — can provide accurate tallies of orders for 12,000 different items; make available complete tallies each day or anytime needed; and accommodate approximately 80,000 order lines per day.

### Punched-card computers

New standards of speed and simplicity in punched-card procedures have been set by our new Punched-Card Electronic Computer. This system eliminates many time-consuming operations on other machines . . . produces *complete* cards, ready for *immediate* tabulation of records and reports.

### Big electronic computers

Remington Rand offers two distinct families of big computing systems. 1) The UNIVAC all-purpose system is designed primarily for business record keeping; 2) the ERA 1101, 1102 and 1103 general pur-

### Solving problems today!

Right now, electronic systems are working economically on such practical tasks as — billing and accounting, statistical reports and forecasts, planning studies and scheduling, production and inventory control, payroll and cost accounting records, pricing analyses, engineering design and data-reduction applications.

pose systems are designed for scientific or mathematical computations.

Outstanding UNIVAC features are: processing of alphabetical as well as numerical data without special coding and decoding operations; high speed in sorting, collating, and filing as well as computing and decision making; tremendous speed of input and output by magnetic tapes; and built-in circuits for *automatic self-checking*, unique among large-scale data-handling systems.

ERA systems have an enviable record for high-speed solutions to complicated mathematical problems such as data reduction, systems simulation, planning studies, and control in real time. The new ERA 1103 provides very high internal speed, large storage capacity, and flexibility to surpass other systems of the same character. It also provides versatile input and output — by teletype tape, magnetic tape, punched cards (80 or 90 columns), line printer, electric typewriter, and oscilloscope.

### Custom-made systems

Air traffic control is just one example of the many special purpose electronic-computer systems created by Remington Rand. This high-speed system receives via teletype such flight facts as: departure time, destination, route, fuel load, payload, and other pertinent data. In less than half a second, the system electronically compares the facts on each flight with as many as 2,000 flight plans it has stored in its magnetic-drum memory. It then revises, cancels, or brings the information up to date according to current conditions. The system com-

pletes the process by teletyping the required results back to the sending station . . . without human handling.

### System designing

Remington Rand specialists analyze *your* needs in scheduling, process control, machine control, inventory control, data reduction, automatic filing, or other problems. A system may be created for you from standardized "building block" components, or we can make components to your needs.

### Computing services

Through two electronic-computing centers, Remington Rand offers you the advantages of the UNIVAC and the ERA systems on a service-bureau basis. The centers have solved problems of such diverse types as complex accounting and record keeping, involved statistical and personnel studies, and cross-indexing of complex catalogs, books, and timetables.

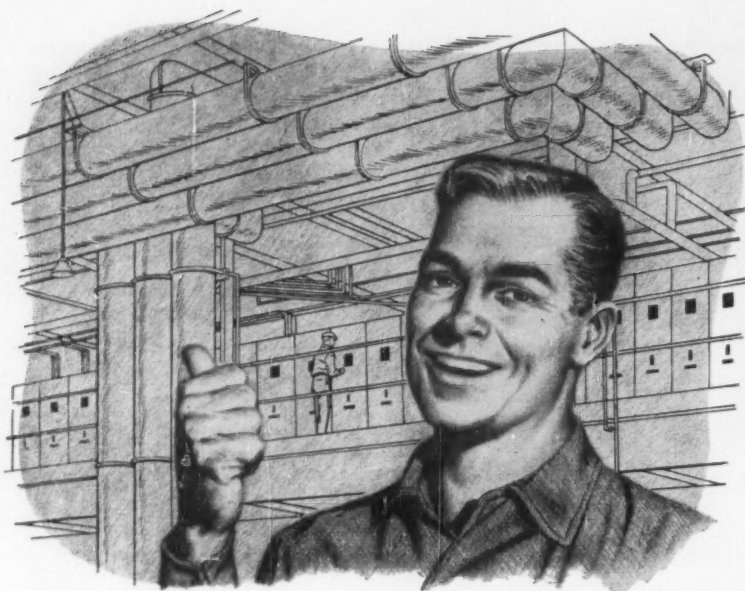
One of the recent jobs handled by the UNIVAC center was a study of seasonal sales patterns and advertising timing. The Bureau of Advertising wanted a projection of 1954 monthly buying trends for 28 specified lines of merchandise in stores across the nation. To do the calculations on this series of 336 trend lines with desk calculators would have taken about 200 man-hours. The UNIVAC computer made all the calculations in just 3 and ½ minutes.

Let us show you how to save time and money on one-time jobs, deadline jobs, unusual jobs, and even routine jobs.

### Management seminars

Through seminars and training courses, Remington Rand will help you learn how to apply electronic methods to your needs. In this way your organization can determine for itself the computer system needed and the economic considerations involved — including choice between our rental or purchase plans. We will also train your employees to operate the system efficiently. For more information, write to Remington Rand Inc., Electronic Computer Dept., Room 1466, 315 Fourth Ave., New York 10.

—ADVERTISEMENT



## "Ever hear of Isolated Phase Bus?"

**You probably haven't.** Not unless you're an engineer. These huge ducts carry the heavy currents produced by giant electric generators. They're called "bus"—Isolated Phase Bus.

**When you think** of an electric power system, visualize a large generator as the *heart*. The bus then becomes the *main artery* leading from the heart. Bus runs consist of large copper conductors suspended within individual metal housings. They are usually built in threes—to conduct current in the three *phases* in which electric power is generated. Each phase is isolated to prevent short-circuiting of the entire system.

**Next time you turn on the lights,** remember. The electricity probably started on its way to you from a generator through Isolated Phase Bus—pioneered and developed by I-T-E for many of the world's greatest power projects.

### I-T-E CIRCUIT BREAKER COMPANY manufacturers for industry

circuit breakers • metal-enclosed switchgear  
power switching equipment • mechanical rectifiers  
electronic components • specialized metal fabrications



**I-T-E CIRCUIT BREAKER CO. Philadelphia 30, Pa.**

requires an even more important job from advertising. Over the years, portable electric tools had become an accepted necessity in industry and the good automotive repair shop. Our advertising in the "Do-It-Yourself" market had to introduce a completely new concept to wholesalers, dealers, and consumers.

### Dollar Competition

Until 1947, very few hardware dealers carried portable electric tools. One of our advertising jobs was to show the dealer how he could increase his business and perform a useful service profitably to his customers by carrying such "Do-It-Yourself" items. Any manufacturer in the consumer market is competing against all other manufacturers for the consumer dollar. Therefore, in dealer advertising, as well as advertising to the public, it is necessary to create enthusiasm and desire for a line if the products are to be successfully moved. The portable electric tool has become an accepted "home appliance," but our advertising and sales promotion activities have to prove this to the dealer before he will add such a line to his merchandise.

In advertising to the consumer it has been necessary to prove to him in many ways why he needs portable electric tools in his home. With our type of product, there are two natural buying periods—the Fall-Christmas season and the Spring paint-up, fix-up, clean-up time culminating in Father's Day. Our advertising campaigns have been purposely stepped up in these periods as they are the natural times when the home owner thinks of projects for improving his castle, and, needless to say, these tools make natural gifts at Christmas



"Don't ask me, Mister—I'm just a clog in the wheel around here."



## Hunting for Lower Operation Costs?

Your transportation becomes hidden treasure when it is turned over to Business Fleets, Inc. Capital outlay, depreciation and repair bills are no longer a problem, and your fleet expenses actually become working capital!



WRITE US TODAY FOR  
THE COMPLETE FACTS

**Business Fleets**  
INCORPORATED  
PASSENGER CAR TRANSPORTATION  
4920 North Broad St. Philadelphia 41, Pa.  
Telephone GLadstone 5-5800



**RECORD  
STORAGE  
a problem?**



**Solve it  
with—**

- Low-Cost
- Convenient
- Space-saving

**STAXONSTEEL**  
REG. U.S. PAT. OFF.  
**TRANSFER FILES**

The only fibre-board  
**DRAWER FILE**  
that "builds its own steel  
framework as you stack it".



• STAXONSTEEL gives you easy-action drawers—quick access to records. Each corrugated fibre-board unit is complete with factory applied steel framework for sturdy support in rear and front. Interlock side-by-side and stack to the ceiling to save space. Letter size illustrated—\$4.70 per unit, slightly higher south and west.



Clip this ad to your letterhead  
**FOR FREE BOOKLET**

- 1 Tells how long to keep records.
- 2 Shows best record storage methods... plus name of your nearest dealer.

**BANKERS BOX COMPANY**  
720 S. Dearborn Street • Chicago 5, Ill.



# DIAMOND...

## *Headquarters for* ROLLER CHAIN DRIVES!

A complete line of American Standard Roller Chain from  $\frac{1}{4}$ " Pitch #25 through  $2\frac{1}{2}$ " Pitch #200.

A complete line of Roller Type Conveyor Chain from 1" Pitch through 4" Pitch.

A complete line of Stock Sprockets for American Standard Roller Chain  $\frac{1}{4}$ " Pitch through 2" Pitch to accommodate all popular shaft sizes and provide all desired speed ratios.

A complete line of Flexible Shaft Couplings utilizing double strand roller chain engaging two sprocket halves stocked in all popular bores.

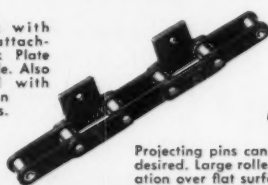


### DIAMOND ROLLER CHAIN ADVANTAGES

- Simplify Selection of Shaft Locations
- Positive Drive Maintains Speed Ratios
- Longer Life and Smoother Operation Assured by Special Pitch Hole Preparation
- Shot-Peened Since 1944 to Increase Fatigue Resistance

### CONVEYOR CHAINS

Pin Link with straight attachment Link Plate on one side. Also furnished with plates on both sides.



Projecting pins can be spaced as desired. Large rollers allow operation over flat surfaces.



Bent attachment plates are highly adaptable as a fastening base for many conveying or timing devices.

### SPROCKETS



**Type A**  
Steel plate sprockets without hubs can be furnished plain, with drilled or tapped holes, counterbored or split.



**Type B**  
Hub on one side of sprocket only.



**Type C**  
Sprocket can be furnished with equal hub projection on each side, or with longer hub projection on one side than on the other.

### FLEXIBLE COUPLINGS AND CASINGS



**Type A Casing** gives protection against abrasive dust and corrosive atmospheres. It provides for excellent lubrication, reduces maintenance and prevents lubrication throw-off.

Diamond Couplings are all steel—two sprockets and a length of double strand high strength Diamond Roller Chain. Coupling absorbs shaft end-play and misalignment—is easy to connect or disconnect.



Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

**DIAMOND**  
DIAMOND CHAIN COMPANY, INC.



**ROLLER CHAINS**

Where High Quality Is Tradition

Dept. 422, 402 Kentucky Avenue, Indianapolis, Indiana  
Offices and Distributors in All Principal Cities

In acoustically treated sound-proof room, an operating RCA "400" Projector rotates as noise meter indicates noise level from every position. RCA Projectors are designed to operate more silently even than required by Society of Motion Picture and Television Engineers' standards.



RCA "400" Projector. The Thread-Easy Way to show sound films.

Thread-Easy film path makes threading a simple operation. You can thread it, and put a picture on the screen in seconds. (At a trade show, 473 guests proved you can thread the RCA "400" in less than 30 seconds.)

## Quietest way to show sound films

Just a whisper of nylon gears and precision-built parts. That's all the operating noise you hear from the RCA "400." Hardly a murmur from the big, husky motor. No need to turn up the sound to blast out projector noise.

(In noise-level tests on five leading projectors, the RCA "400" proved it operates more silently than any of the others—well below the level of motion-picture engineering society recommendations.)

For careful film handling, tell your RCA Dealer you want the RCA "400" 16mm sound projector.

### Check these 6 important advantages of the RCA "400" Projector

1. Thread-Easy film path for 30-second threading
2. Low-speed induction motor for quiet service-free operation
3. Floating sprocket shoes for gentle film handling
4. Husky motor, nylon gears for long-term dependability
5. Simplified design for 2-minute set-up, 3-minute pack-up
6. RCA-engineered sound system for superb reproduction



**VISUAL PRODUCTS**  
**RADIO CORPORATION of AMERICA**  
ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N.J.

In Canada: RCA VICTOR Company Limited, Montreal



For more  
information  
MAIL  
COUPON NOW

Visual Products, Dept. 79X  
Radio Corporation of America, Camden, N. J.  
Please send me your new, free booklet, RCA "400"  
Senior and Junior Sound Film Projectors.

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

and Father's Day. The hobbyist and skilled mechanic are important factors in the purchase of portable tools, so we keep the pressure on this type of prospect throughout the year.

Advertising in a consumer market raises budgetary problems as it, of course, costs much more to reach millions of prospects as compared to thousands or hundreds of thousands in specialized industrial fields. Therefore, with only a certain number of dollars to spend, it is natural that our advertising and promotion efforts should be lumped into the peak buying seasons. The problems of reaching the mass market are certainly greater than reaching industrial prospects who have already been pinpointed.

### Sales Problems

If advertising causes problems in the "Do-It-Yourself" market, the problems of sales promotion are multiplied many times over. In the industrial field, we sell through distributors to the user. Over-the-counter sales do not represent too large a proportion of the industrial distributor's sales; therefore, sales promotion is fairly limited. This is not true in the "Do-It-Yourself" market, where we sell through wholesalers, to dealers, to the consumer. The wholesaler needs much the same type of sales aids that we provide the industrial distributor, but the dealer needs all forms of aids — point-of-purchase displays, mailing pieces, catalogs, news mats, window streamers, radio scripts—anything to catch the customer's attention. The problem, once you have created interest through your advertising, is to get the prospect into the dealer's store where your products are on display. All the fine features of sales promotion must be employed to focus attention on your product.

Portable electric tools being a fairly recent addition to the hardware dealer's line of merchandise, it has been necessary to instruct the dealer on the various sales approaches and sales clingers in merchandising such items. Recently, we published a 40-page sales training manual entitled *Easy Ways To Sell Portable Electric Tools*, which is loaded with pertinent information on the size of the "Do-It-Yourself" market, how to set up a tool department, how to advertise, basic

Permoflux  
*Scribe*

AMERICA'S NO. 1  
*Tape*  
DICTATION SYSTEM



SIMPLIFIES DICTATION  
SPEEDS CORRESPONDENCE

clarity

SCRIBE introduces vivid, professional quality recording with magnetic tape. Your secretary hears every syllable as you said it, avoids costly, time-consuming errors.



efficiency



SCRIBE provides one-lever, fingertip control... snap-on tape magazine... "error-free" dictation... for unmatched simplicity of operation.

economy



One SCRIBE magazine of tape is good for years and years of normal use. Old messages are erased as new ones are dictated. No resurfacing, virtually no costly replacements.

versatility

SCRIBE takes your letters and memos... records phone calls and conferences... goes on trips with you for time saving dictation en route.



GET THE FACTS ON SCRIBE

Not simply a "tape recorder," SCRIBE combines magnetic tape with advanced design to bring you unparalleled dictation ease and economy.

SEND FOR BOOKLET

clip coupon to card or letterhead  
**SCRIBE CORPORATION** Dept. D-12  
2835 N. Kedzie Avenue • Chicago 18, Ill.  
Please send booklet on Scribe tape dictation (no obligation, of course).

SIGNED \_\_\_\_\_



# See How **OZALID** Copies Speed Order Handling!



Ozalid copies are slashing costs by eliminating retyping . . . proofreading . . . costly errors! The efficient, desk-top Ozamatic machine makes direct copies of order forms, letters, invoices, charts or practically *anything* typed, written or drawn on ordinary translucent paper. Your first copy is ready in seconds—*clean, dry and ready-to-use*—or up to 1,000 copies in an hour at a cost of 1½¢ each!

## Ozalid Copies of Original Handwritten Order Speed Up Work in All These Places!



**Stock Room** for filling orders for shipment.



**Customers**, in acknowledgment of orders.



**Shipping Department**, for packing slips and labels.



**Inventory Control Department**, for an up to date record.



**Billing Department**, for customer invoices.

Send coupon for full details, or call the Ozalid distributor listed in the classified pages of your directory under Duplicating Equipment and Supplies.



**Accounting Department**, for accounts receivable files.



**Sales Department**, for record of sale.

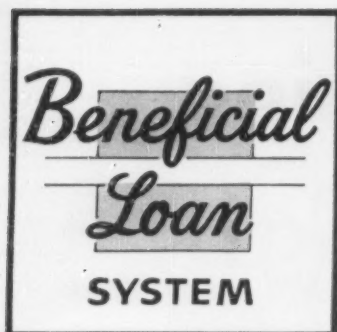
Cut Copying  
Costs . . . use

# **OZALID**

Johnson City, N. Y. A Division of General Aniline & Film Corporation.  
"From Research to Reality." Ozalid in Canada—Hughes Owens Ltd., Montreal.

OZALID, Dept. D-37  
 General Aniline & Film Corp.  
 Johnson City, N. Y.  
 Gentlemen: Please send me full information  
 on your Ozamatic machine.

Name.....  
 Company.....  
 Position.....  
 City.....  
 Check the Application of Greatest Interest:  
☐ General    ☐ Accounting    ☐ Order Handling



# Announces the Opening of its 800th Office

The 800th office in the Beneficial Loan System has recently been opened at Chicopee, Massachusetts. Beneficial now serves borrowers through offices located in 532 cities in the United States and Canada.

The 45th new unit to be added this year, the Chicopee office is more than a measure of Beneficial's growth. It is also the latest expression of Beneficial's continuing policy of meeting family financing problems with realistic help—when and where the need for it arises.

That policy is the reason why the Beneficial Loan System in 1953 will make more than a million-and-a-half loans, totaling approximately half-a-billion dollars.

*A Beneficial Loan is for a beneficial purpose.*

## Beneficial Loan Corporation

WILMINGTON, DELAWARE

Subsidiary Loan Companies: PERSONAL FINANCE COMPANY . . . COMMONWEALTH LOAN COMPANY . . . LINCOLN LOAN CORPORATION . . . WORKINGMEN'S LOAN ASSOCIATION, INC. . . . BENEFICIAL FINANCE CO. . . . CONSUMERS CREDIT COMPANY . . . PROVIDENT LOAN AND SAVINGS SOCIETY OF DETROIT

sales approaches, and specific points on our own products. The acceptance of this manual has been excellent and we are told that it is being used by many proprietors of hardware stores to train their salesmen not only in the sale of our products, but also many other items in the store. We believe that such efforts are most necessary. But, as you can see, this requires a great deal more time, effort, and expenditure than marketing to the industrial fields.

### Selling Aids

With a two-step form of distribution, our salesmen's time becomes much more of a factor. A dealer, from time to time, requires specific aid which a wholesaler often is not in a position to do adequately. For instance, store demonstrations are of great assistance in moving tools, and both the wholesaler and the dealer would much prefer a "factory man" to do this type of work as he is skilled in the operation of the tools and can answer specific questions much more accurately. The wide-awake retailer also likes to get individual help and attention when he is planning a promotion. So it is only natural that, with a great number of stores to be covered, our salesmen have many calls on their time.

Most industrial manufacturers are thoroughly familiar with the

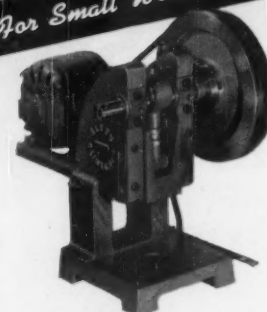


GENDREAU PHOTOGRAPH

part that trade shows play in the successful marketing of products. In most cases, these trade shows are on a national level and, for the most part, are well spaced so that salesmen's time is not devoted too heavily to such activities. Also only a few exhibits need to be constructed to adequately cover all of the shows. However, such does not seem to be the case when you are marketing a product which can be used in any home and which is most successfully merchandised when it is demonstrated. For some time we have participated very actively in state and regional hard-

## ALLEN 1-TON POWER BENCH TYPE PUNCH PRESS

*A Rugged, Reliable Press  
For Small Work*



Cuts Costs and Saves Money On Stamping, Forming, Drawing, Etc.

Overall height—17 1/4"  
Base size—8 1/2" x 8 1/2"  
Die bed—5 1/2" x 8 1/2"  
Ram face—1 1/2" x 3 1/2"  
Ram stroke—3/4"  
Positive 3/4" ram adjustment.

Sturdy, single pin, non-repeat hand lever clutch. V-belt drive. Total weight 105 lbs.

### 30-DAY MONEY-BACK GUARANTEE

Full year warranty against defects. Send your order today. Price \$125.00 f.o.b. Clinton, Mo. (includes motor bracket, V-belt, motor pulley, less motor)

Free Circular

ALVA F. ALLEN  
DEPT. D CLINTON, MO.



Do your employees understand how your business is affected by such things as . . .

Waste	Depreciation
Absenteeism	Taxes
Overhead	Accounts Receivable
Inventories	Good Will

Every organization has problems and misunderstandings which stem directly from employee misconceptions of the basic elements of business.

Any business organization involves so many procedures, policies, forms, personalities, and inter-relationships that even the boss sometimes loses sight of the "forest for the trees."

Misunderstandings often result in strife and bitterness. Sometimes they only simmer, but are nonetheless harmful to morale.

ENTERPRISE is a monthly magazine for all employees which thoughtfully and objectively explores all aspects of business and industry in simple, understandable language. Through this broad "third person" approach the reader gains perspective and understanding.

Distributed Through Information Racks . . .  
As An Employee Magazine Supplement . . .  
Or Through Direct Subscription.

Write for Literature:  
Direct Inquiries on Company Letterhead to:

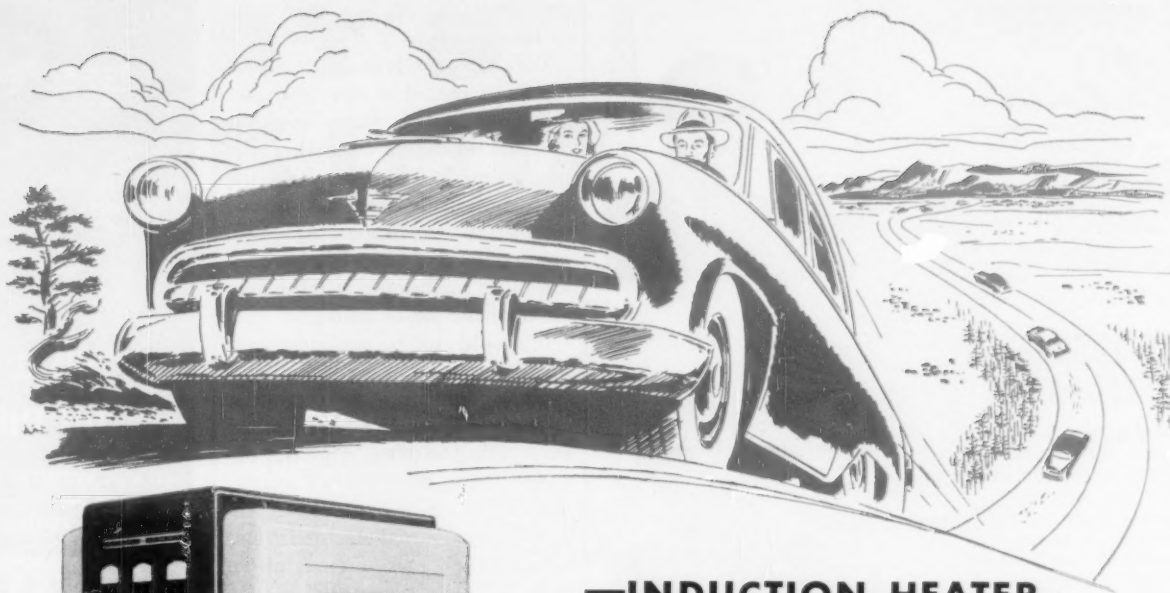
### ENTERPRISE

333 N. Michigan Ave.

Chicago, Ill.



# Longer Life Under The Hood



## —INDUCTION HEATER provides high-speed, precision hardening of engine parts

ONE POPULAR engine requires 16-valve lifter rods carefully hardened only at the ends. For this job, the manufacturer relies on an Allis-Chalmers induction heater like the one shown here. It hardens these rods at the astonishing rate of 3600 per hour—and only one machine operator is needed!

This self-contained electronic unit performs all kinds of heating operations—brazing, soldering, hardening, annealing—just by changing the work coils for each job. It offers substantial production economies and quality improvement to manufacturers of a wide range of industrial products.

20-kw Allis-Chalmers  
induction heater with  
Allis-Chalmers de-  
signed work fixture.

**Machinery and Equipment to Help People Produce More,  
Have More—LIVE BETTER!**

# ALLIS-CHALMERS

GENERAL MACHINERY DIVISION



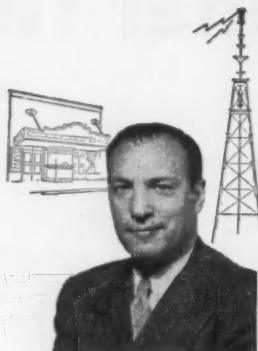
C-5656

PLANTS IN: MILWAUKEE, WIS.—PITTSBURGH, PA.—NORWOOD, OHIO—BOSTON, MASS.—TERRE HAUTE, IND.—MONTREAL, P. Q.—ST. THOMAS, ONT.

## "WE KEEP IN CLOSE TOUCH WITH OUR AFFILIATES BY TELEGRAM!"

"We find Telegrams invaluable for daily report of theatre receipts, for clearing our member stations for network programs and many other uses. The fast, accurate, 'on-record' service of Telegrams keeps us in constant, quick touch with our affiliates everywhere."

LEONARD H. GOLDENSON, President  
American Broadcasting-Paramount Theatre, Inc.  
New York, N. Y.



## "COULDN'T OPERATE WITHOUT TELEGRAMS"

"When a Blue Cross member needs hospital care away from home, we must immediately check with his own Blue Cross office. That's how we assure our members prompt, proper protection, wherever they are. Telegrams provide the speed, accuracy and written record required in these communications. We use thousands of Telegrams every month for that purpose alone."

MARGARET HILL, Manager  
Inter-Plan Bank, Blue Cross Commission  
Chicago, Ill.



## "SUCCESSFUL PROMOTION LAUNCHED BY REACHING 800 DEALERS IN 24 HOURS"

"DeJUR's recent promotion built around Carol Reed on WCBS-TV was given a wonderful send-off by the use of Telegrams. We sent night letters to over 800 dealers with a provocative message announcing our sponsorship. Our dealers later complimented our salesmen on DeJUR's method of promoting the program through Western Union."

ED BASSUK, Advertising Manager  
DeJUR-Amsco Corporation  
Long Island City, N. Y.



## IN YOUR BUSINESS, TOO ...

Telegrams can help you to operate more smoothly, at lower cost, with greater profit.

when it means business  
**it's wise to wire**

# WESTERN UNION

ware association shows and lumber shows. Within the last year, a large number of consumer type shows, best described as "Do-It-Yourself" Shows, have sprung up all over the country. It would be impossible to participate in all, but they have to be chosen on a selective basis.

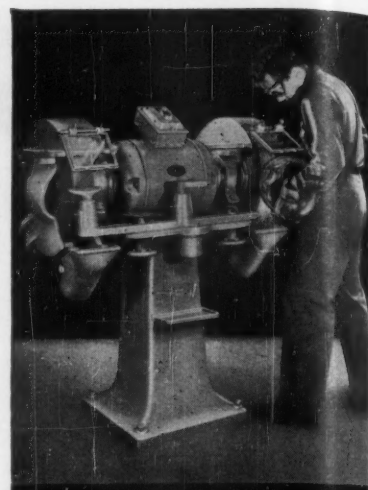
Very often a wholesaler or dealer can be persuaded to enter a smaller consumer show featuring your products. However, even where the wholesaler or dealer is taking the space, he usually needs at least one company man to demonstrate which, needless to say, taxes the effective force that you can put into the field for the basic job of selling.

It should not be misunderstood that these problems are being registered as complaints—for they most certainly are not. We have learned many valuable things since our entrance into the "Do-It-Yourself" market which actually have improved us as manufacturers and merchandisers of our industrial tools. Take packaging, for instance. In the consumer market, packaging is most important because the package in most instances serves as a point-of-purchase display. The package has to be attractive, eye catching, and infer the quality which is inherent in the tool or accessory which is within the package. From



POINT LOBOS, CAL.

our experience in the "Do-It-Yourself" market, we have completely redesigned the packaging of our thousands of accessories in our industrial and automotive lines. First, we standardized on sizes of boxes, thereby cutting down from 177 different boxes to seventeen. We developed attractive wrap-around coverings that look appealing on a display counter or in a distributor's bins. We improved the legibility of the descriptive material on each box so the stock clerk could find what he was looking for much more quickly. These improvements have helped over-the-counter sales by



## PUT THIS U. S. GRINDER ON THE SPOT

... where you want to reduce costs

Check these U. S. Electrical Tool features—there are many cost-saving advantages in operating ruggedly-built Model 500 Grinders.

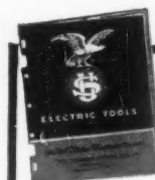
Standard equipment includes totally enclosed motor, 1 to 5 H.P., push button starter providing overload protection, ball bearings enclosed in dust-tight housings, enclosed adjustable wheel guards, tool tray and lift-out water pot. Eye shields and grinding wheels furnished as extra equipment. Furnished for 220/440 volt, 60 cycles, 2 or 3 phase AC.

Model 500 Grinders are available from stock for immediate shipment.

The U. S. Tool line is complete, ranging from hand drills, sanders, grinders and buffers to heavy-duty snagging grinders. If you don't know your nearby U. S. Distributor write at once for his name and free Tool Catalog No. US 37.

**NEW!** 4-page folder on U. S. Tool utility grinders, buffers and dust collectors. Write for Bulletin US 56.

United States  
Electrical Tool Division  
THE EMERSON ELECTRIC MFG. CO.  
1050 Findlay St., Cincinnati 14, Ohio



Write for this free catalog.



Since 1890



*Taxes affect*

# WHAT'S COOKING

*in your company's cafeteria!*



WHEN TAX CHANGES OCCUR—will your employee feeding costs absorb a much larger share of *net* earnings? Will your costs—that now amount to only a few cents after taxes—jump two or three times and eat up a larger portion of net profits?

Today, with the prospect of a drastically changed tax picture, more and more management-wise firms are investigating the various means offered by Factory Stores—food management specialists—to conserve operating profits by improving the efficiency of their employee feeding.

Factory Stores, with many hundreds of specialists on its staff, assumes full responsibility for the management and operation of whatever type of food service is best suited to your needs—cafeterias, canteens, mobile units, snack bars or executive dining rooms. You gain improved employee relationship and increased efficiency—at the lowest possible cost to you and to your employees.

## Factory Stores

SPECIALISTS IN FOOD SERVICE  
MANAGEMENT SINCE 1919

SERVING: National Tube, Moloney Electric, Anheuser-Busch, Allegheny-Ludlum, Bridgeport Brass, Ohio Rubber and many other leaders in industry

### What about your food service?

- Pace of service—is it slow?
- Facilities—convenient to all?
- Layout and equipment—how efficient?
- Food—palatable... varied?
- Prices—reasonable?
- Purchasing—advantageous?
- Employee reaction—helpful?

### SEND FOR FREE BOOKLET

If you are one of the many executives operating or contemplating in-plant food service, this booklet will supply information that will enable you to fully evaluate your employee feeding program.



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Without obligation please send me your 20 page booklet on Industrial Food Service Management.

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City \_\_\_\_\_ State \_\_\_\_\_

a special message  
for manufacturers  
of military  
equipment



need a finish to beat these specs?

specify **IRIDITE**

AN-C-170 MIL-S5002 MIL-C-5541 AN-P32  
AMS-2402A USA-50-80-11A J.Q.D. No. 144B  
USA 57-93-2A O.S. No. 1374 USA 57-0-2C AN-P61  
A-XS-1607 QQ-P-416 QQ-Z-325 MIL-3151—  
if you're finishing under these or similar specifications,  
here's how you can use Iridite:

**ON ZINC AND CADMIUM** you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

**ON COPPER...** Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

**ON ALUMINUM** Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

**ON MAGNESIUM** Iridite provides a highly protective film in deepening shades of brown. No boiling, elaborate cleaning or long immersions.

**AND IRIDITE IS EASY TO APPLY.** Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

**WANT TO KNOW MORE?** We'll gladly treat samples or send you complete data. Write direct or call in your Iridite Field Engineer. He's listed under "Plating Supplies" in your classified telephone book.

Iridite is approved under government specifications

**ALLIED RESEARCH PRODUCTS**  
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Manufacturers of Iridite Finishes for Corrosion Protection and  
Paint Systems on Non-Ferrous Metals, ARP Plating Chemicals,  
WEST COAST LICENSEE: L. H. Butler Co.



distributors and certainly have proven a boon to the distributor and his stock clerks in efficient warehousing and handling. Much of this improvement can be directly credited to our entrance into the "Do-It-Yourself" consumer market.

"Do-It-Yourself" reaches into every segment of our society. The apartment house "cliff dweller," the home owner in suburbia or the rural town, and the farmer are all prospects for the multitude of products which are being offered to-day. According to the American Newspaper Association, \$75 a year are spent by every household in the US on "Do-It-Yourself" products.

It would be foolish to think that "Do-It-Yourself" is limited to our nation alone. Our English plant is producing the same tools that we make here and this production coupled with our own is being marketed successfully in all corners of the free world. In such far-away places as Nairobi and Kenya wholesalers and dealers are doing a most active merchandising job, for, in our case, wherever electricity is available there is a use for portable electric tools to relieve man of



The AUTHOR

ALONZO G. DECKER has been in the "Do-it-Yourself" business for a large number of years. Along with S. Duncan Black, he founded the company of Black & Decker in 1910. Because he has been in this line almost from its inception, he is familiar with the many problems and troubles brought about by the tremendous post-war interest that has been generated.

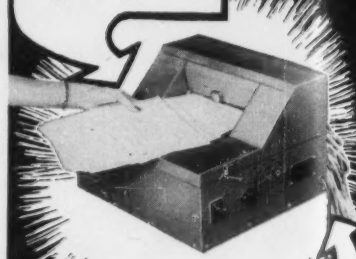
In addition to the increased work that has been the result of such interest, Mr. Decker also finds time for other activities. He is president of the Industrial Corporation of Baltimore and president and director of the Hospital for Consumptives of Maryland.

laborious hand work.

The "Do-It-Yourself" market offers a tremendous challenge to any manufacturer and the opportunities are unlimited. It is a new and exciting market to which magazines, newspapers, radio, and television are devoting a great deal of space and time. This publicity will undoubtedly taper off, but "Do-It-Yourself," like the telephone and electric refrigerator, is here to stay.

THE END

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Shreds come out

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Shredding Machine

quickly turns your confidential papers... old records... waste paper of all sorts... into completely unreadable shreds, valuable only as packing material. **ANYONE CAN USE**—Quick, safe, easy operation!

**PERFECT FOR OFFICES**—Silent, Clean, Dust-free, Compact!  
**PAYS FOR ITSELF**—Provides valuable packing material at no cost!

For Your Office—  
Portable, Noiseless Desk Model  
(Shown Here).

Also Available—  
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Models for Banks, Department Stores,  
Warehouses, Plants, etc.

Write for Free Circular No. 12—  
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Division of Self Winding Clock Co.  
195 Willoughby Ave.  
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**MARSH**

**STENCILS**  
Deliver The Goods!



**New, faster marking system  
simplifies shipping!**

Yes, put away non-permanent tags and labels, eliminate tacking, stapling, gluing of addresses. Simply apply MARSH stenciled marking directly onto your shipments. Bold, easy-to-read 1/2", 3/4" and 1" letters. With either electric or hand operated machines it's faster, and costs you less than complicated methods. Ask us for proof today.

**For more information or a free  
demonstration mail us this ad with your  
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MACHINE CO.  
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**MARSH**



Marketing notes  
and comments

## THE BIG YOUTH MARKET:

### *How to learn what it thinks*

*A new poll of youngsters, by youngsters and for youngsters—via industry—helps guide the way to a \$25 billion market. Briefs: new GE distribution plan; news bureau promotion; sales outlook.*

MARKET research has been boomed so much and so many fond hopes have attached to it that the time may well be coming when, in addition to a chicken in every pot, we will all have a market researcher in every home.

Coming out of the red and moving into a five-figure net this year is a group which conducts market and attitude research exclusively among young people from five years of age up through 22. What youngsters think about products and packages interests a number of clients. Among them: Du Pont, Ethyl Gasoline, The American Tobacco Company, DeSoto-Plymouth, all of whom hired the Rand Youth Poll of the Youth Research Institute to gauge the tastes, thinking, and purchasing habits of the nation's small fry.

All of this is a more or less logical development. More surprising at first is the fact that the Institute-trained researchers are themselves in the sub-voting set. The poll has about 1,800 junior interviewers strategically located in elementary schools, junior highs and high schools, and colleges. They are doing the leg-work because the poll finds that they are best able to pry honest reactions from their confederates. Children, having little awe and less interest in market research, shy away from questions asked by strange adults.

To date the organization has concentrated on investigating the effectiveness of premiums, brand indoctrination via advertising (TV viewership, radio listening, magazine and newspaper reading), the shopping kids do by themselves and the shopping they do with their parents, what and who influences their purchases, their style consciousness, and purchasing habits.

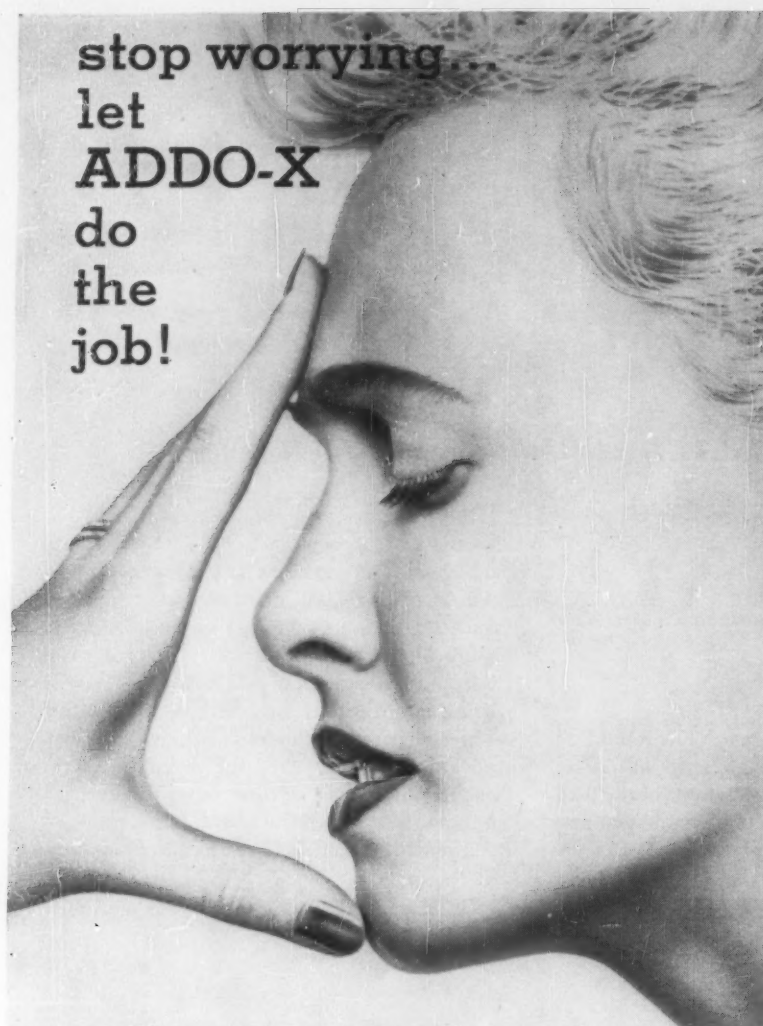
Whenever possible, the company doublechecks by launching a pilot probe of the parents. A recent project, for example, was a study done for the Donut Corporation of America. DCA was about to launch a new line of junior-sized donuts

to be known as the "donut gem." The Rand Poll sent out the word to interviewers in 40 market areas to select a representative sample of the total population or, rather, that portion of it falling between eight and sixteen years of age.

The respondents received a pack of silver-dollar-sized donuts each week for four weeks and paid up with an interview at the end of the period. A total of 4,000 interviews were recorded (and 90,000 donuts sampled) to get a complete picture of the potential market. An additional 2,000 opinions came from spot tests at high school parties and the like. But, because only a few progressively reared children are free agents, mature interviewers quizzed the parents of every fourth child to balance *their* views of the heir's eating habits. Then, of course, the completed questionnaires were sent back to the parent com-



Stunned respondent (right) is one of the many thousands of children interviewed by their confrères for the Rand Youth Poll during the last two years. Eager pollsters range in age from eleven to 25.



Yes, indeed, whenever figures are involved . . . that's the time for the new ADDO-X with the plus feature SML\*. You'll marvel at its super smooth operation, simplicity and accuracy. But that's not all. The exclusive **STEP-O-MATIC LEVER** makes the ADDO-X a calculator as well . . . when used for multiplication.

This . . . plus ADDO-X's symmetric key board, "live" Repeat and Repeat/Subtract Key and error-proof design . . . makes ADDO-X the most advanced adding machine on today's market. Write for new, illustrated folder and full details.

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pany for editing, verification, tabulating, and analysis. Youth Poll head Rand, incidentally, informs us he is 27 years old. He estimates that people between the ages of five and 25 spend or have spent on them about \$25 billion annually.

So much is being said about the necessity for training salesmen to know their product as well as knowing how to sell that it is refreshing to note that old-fashioned promotions and plain enthusiasm have a pay-off too. In Arkansas, Raytheon Distributor, Inc., teamed up with recent high-school graduates and junior college students to push TV sales in Little Rock during the off-season Summer months.

The arrangement worked on the customary contest basis. Each contestant collected points for arranging set demonstrations in consumers' homes; for final sales after demonstrations, and for sales made without demonstration. Students made the cold calls; dealers followed up on the hundreds of prospects developed during the Summer contest.

Still another method for mutual profit involving teen-agers turned up last month when Max Steinbook, president of the Broil-Quik Company, disclosed an arrangement he's made with New York's City College. Students taking the advertising campaigns course there have as their term assignment a full-scale promotion of one of Broil-Quik's products. Aside from getting an "A" for effort, the top student will receive a broiler for added incentive. From the students, who have a complete file of past campaigns for reference, the company advertising department expects to collect a number of fresh, new, promotion ideas.

### *Independent auto's market share drops*

Taking a hard look at industry statistics last month, Nash-Kelvinator's President and Chairman George W. Mason sent out a reassuring letter to Nash auto dealers. "Some writers," he said, "are say-



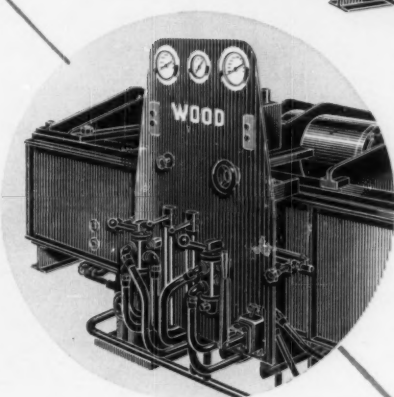
### *Package awards show design trends*

After watching the Mennen line (above) win the Package Designers Council award this magazine checked with top designers for their views of current trends. Said winning designer Francis Blod of Design Associates, Ltd., sitting in on meetings with the entire organization from sales to suppliers was key reason *his* package clicked. Packageman Jim Nash, head of PDC, thinks self service is basically responsible for new importance of package design. Designer Frank Gianninoto points out that face panel copy is now being delegated to the side and rear panels. Main purpose

of face panel in the new look is to stop the buyer in his tracks. He'll pick it up and read it later if he's interested. Asked why *he* thought the Mennen line of men's toiletries won, designer Egmont Arens said, "Particularly strong in supermarkets. Their powerful and simple over-all design stands out." This department noted that the Mennen type in the newly designed packages was smaller, giving way to a larger-size product identification. Another trend noted: standard sizes are getting tough competition from novelty packages, namely whisky decanters.



**150<sup>th</sup>**  
anniversary



Hydrostatic Tube Testing Machine  
designed for the hydrostatic  
testing of tubes of  
4½" to 12" nominal sizes and in  
maximum lengths of 35'.  
Test pressures range from  
700 to 1500 psi. Write for catalogs  
of our hydraulic equipment.

## ***R. D. Wood Hydrostatic Tube Tester***

"... that industrial equipment which has maintained  
high excellence in manufacture will continue to be sold,  
and will contribute its worth to uplifting the general  
quality of everything produced in industrial America ..."

**R. D. WOOD COMPANY**

PUBLIC LEDGER BUILDING, PHILADELPHIA 5, PA.



HYDRAULIC PRESSES AND VALVES FOR EVERY PURPOSE • ACCUMULATORS • ALLEVIATORS • INTENSIFIERS

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tops for wear...

Allwood's density and surface hardness make it a material which you can depend on to withstand hard usage and rough wear. You'll find it in use now on work tables, typewriter stands, lab tables, kick plates, and X-ray tables. At the plant itself Allwood is even being used as flooring material in work areas.

Write, wire or call for help on your problem, or send for free technical booklets.

OREGON  
LUMBER  
COMPANY

DEE. OREGON

\*Trademark Oregon Lumber Co.

ing the only way smaller producers can survive is through merger. To this I say, ridiculous!" Though Mason did not rule out the possibility of a merger, he stressed the fact that Nash Motors was part of the fat Nash-Kelvinator family and, therefore, the strongest of the independents. Also on the credit side: a growing total demand; a growing group of customers who want a "different" car; integrated production facilities.

As Mason's message reached the dealers, figures covering new passenger car registrations for the first three quarters of this year were released. They revealed that the independents got .97 per cent of total domestic sales, as compared with 1.7 per cent during the same period in 1952.

### Marketing briefs

• Add multiplying signs of the hard sell: Westinghouse Electric Corporation last month cut prices of all six of its 21-inch TV receivers from 28 to 40 per cent. Key to the situation is the feeling—backed up by sales figures—that all models over

\$300 are becoming slow movers. With so much talk about a slump consumers are wary about buying on credit. Four other major TV producers have announced production cutbacks.

To promote refrigerator sales during the holidays, GE is featuring a skip-payment plan plus a give-away—no payments for 90 days and a free ice bucket. Also, last month GE came up with one solution to mounting distribution costs. From its Louisville plant, the company will ship major appliances (dryers, ranges, and so on) straight to the dealer, skipping the traditional path to the wholesaler. A small dealer who couldn't afford to buy a carload lot of one appliance can now buy a mixed carload. Estimated savings on handling charges, warehousing, and wholesaler-to-dealer transportation: at least 4 per cent.

• A company news bureau too often gets a cold shoulder in its own firm because management fails to appreciate its objectives. A preliminary way to encourage co-operation has been uncovered by the Rockwell Manufacturing Company, which

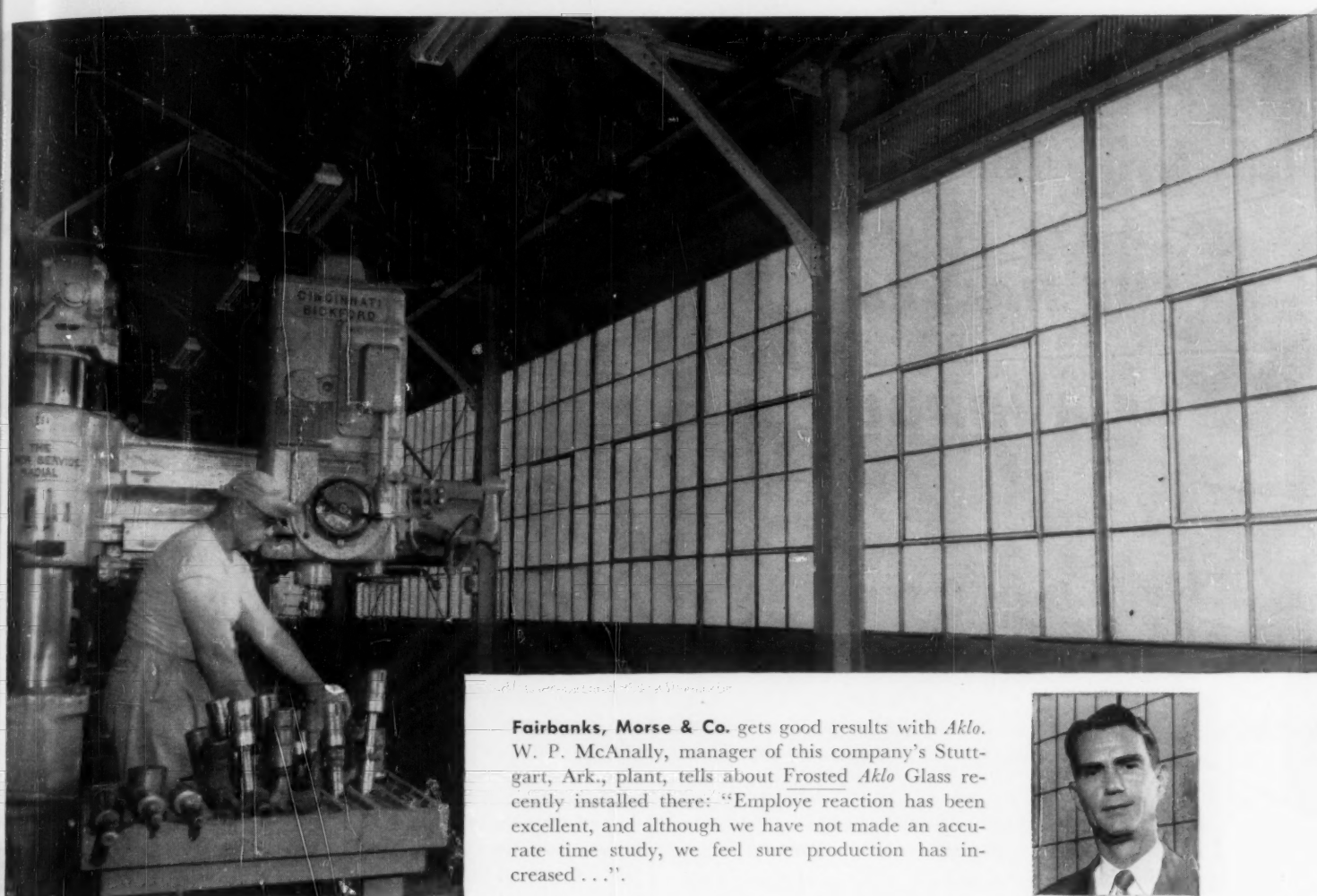


### Stock market faces facts, plays fairs

Recent decision of New York's big board to push "installment buying" of stocks showed belated recognition of a fact that industrial marketing men have been aware of for some time—that top- and bottom-income groups are of diminishing importance in the economy. For some time, however, individual brokerage houses have been educating the middle-income consumer in the mechanics of stock ownership. Last Fall, West Coast brokers J. Henry Helser & Company rented a booth at the Oregon State Fair for an all-out experimental promotion. With the co-

operation of the New York Stock Exchange, Western Union, Trans-Lux Movie Ticker Corporation, and Dow Jones, machines threw a constant barrage of financial news, plus price quotations direct from New York into the booth. The company estimates that 80,000 persons passed the booth, counted 2,500 who entered the booth for conversations, 8,000 pieces of literature given away. Major aim of the exhibit was to clear away the aura of mystery. The company plans to be on the midway next year again, even though it sees returns as a long-run proposition.





Fairbanks, Morse & Co. gets good results with Aklo. W. P. McAnally, manager of this company's Stuttgart, Ark., plant, tells about Frosted Aklo Glass recently installed there: "Employee reaction has been excellent, and although we have not made an accurate time study, we feel sure production has increased . . .".



## People can work better in comfortable daylight

People like to work in daylight in which distracting glare has been subdued—in which sweltering sun heat has been reduced. That's why you see Blue Ridge Aklo\* Glass in so many new and improved buildings.

Frosted Aklo Glass softens and diffuses direct sunlight and sky brightness, reflected glare from ice and snow, and dazzling all-year reflections from other bright surroundings.

Aklo Glass makes working areas cooler in summer, too.  $\frac{1}{4}$ " Frosted Aklo shuts out as much as 44% of the sun's heat. That's why it's so widely used on south and west exposures.

With Aklo daylight, people can produce more and better work. They're less prone to err. They're more comfortable on the job. Frosted Aklo Glass makes it

easier to work next to windows, giving a building more usable floor space.

### Heat-in-motion test shows Aklo's benefits!



Here's a test that gives you quick, conclusive understanding of the benefits that Aklo users enjoy. See HEAT IN MOTION right at your desk. Ask your L·O·F Distributor or Dealer for this radiometer demonstration. He's listed in phone book yellow pages in many cities. Or write directly to Patterned and Wire Glass Sales, Libbey-Owens-Ford Glass Co., B-27123 Nicholas Bldg., Toledo 3, Ohio. The booklet, "Filtered Daylight", is yours for the asking, too.

\*®

**BLUE RIDGE  
AKLO GLASS**



**FILTERS  
DAYLIGHT**



**L·O·F  
GLASS**

**LIKE  
THE HALVES  
OF A HINGE**

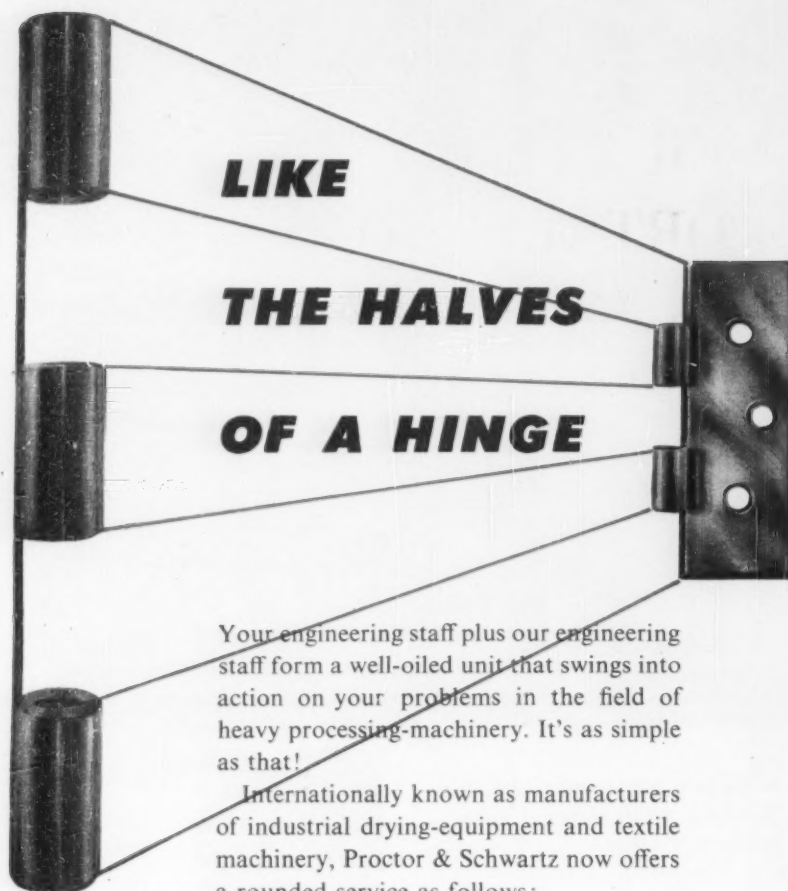
Your engineering staff plus our engineering staff form a well-oiled unit that swings into action on your problems in the field of heavy processing-machinery. It's as simple as that!

Internationally known as manufacturers of industrial drying-equipment and textile machinery, Proctor & Schwartz now offers a rounded service as follows:

- 1 Laboratory research
- 2 Engineering design
- 3 Development
- 4 Manufacturing
- 5 Field engineering and erection
- 6 Project and sales engineering

Tap the resources of our 80-man engineering staff . . . of our 70 years' world-wide experience . . . for those plans now in the talk-and-scribble stage. Our new booklet will give you a broader picture of our services.

Send for booklet showing precisely what it is we do



## Proctor & Schwartz, Inc.

CREATIVE ENGINEERS SINCE 1883

750 TABOR ROAD, PHILADELPHIA 20, PA.

A COMPLETE ENGINEERING-MANUFACTURING FACILITY  
FOR HEAVY PROCESSING-MACHINERY

has prepared a booklet for its executives explaining why a press service is important and why specific publics (shareholders, suppliers, customers) have a legitimate interest in company news. The booklet touches on delicate policy, too, with the affirmation that the news bureau does not "expect preferential treatment from any publication because of Rockwell's position as an advertiser."

• The use of double duty sales aids (see DUN'S REVIEW AND MODERN INDUSTRY, September 1953, page 45), long a fixture in the appliance industry, is spreading. One of the most recent examples comes from the Autocar Division of the White Motor Company. Autocar's sales manual was intended for basic use by their salesmen. Since, however, it was apparent that customers and prospects give the manual a close going-over during the usual presentation, sales executives turned their new manual into more of an attention magnet by putting bleed photographs on the divider stock. The dividers are tabbed on the outside edge for easy reference to the various sections and the photographs show the customer detailed steps in the manufacture of the firm's trucks and tractors, with captions.

• For the full story of what has been termed a king-pin in a marketing revolution, automatic vending machines, write to the National



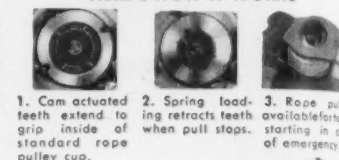
### Fifth color show on tour

Eastman Kodak's new color show this year will feature demonstrations, beginning in January, of their new Ektagraph process (above) for top admen, photographers in twelve major cities.



This amazing new Armstrong Starter is packed with important new features — It is 50% lighter — smoother acting — easier to service and mount. The principle is based on the use of friction. Inside a conventional rope starter cup. Actuated by a cam principle it engages after 1/4 inch pull. Eliminates danger of teeth or pawls breaking — permits greater tolerances in mounting. Available with stationary or rotating screen. Competitively priced.

### ARMSTRONG BULLDOG STARTER HERE'S HOW IT WORKS



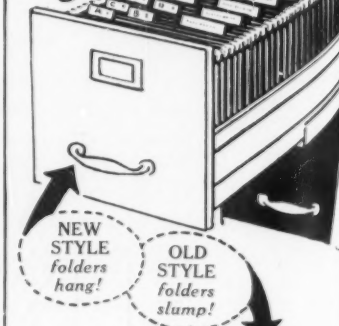
If you make, sell or use products like Chainsaws • Pumps • Power Mowers • Outboard Motors, you can reduce weight — improve starting — increase starter life.



ARMSTRONG PRODUCTS CO.  
Milwaukee, Wis.

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and cut  
filing costs  
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### PENDAFLEX® HANGING FOLDERS

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## INCREASE MANPOWER EFFICIENCY WITH MAGNESIUM PORTABLE TOOLS

Portable chain saws "Made with MAGNESIUM" double output per man by cutting weight—another example of how MAGNESIUM helps industry



Something new has been added! Not too long ago these rugged pieces of equipment were so heavy that they required two-man operation. Many models of today's chain saws can be handled by one man, yet their output, power and durability are better than ever. The difference is Magnesium . . . the world's lightest structural metal . . . useful wherever weight is a penalty.

Magnesium has made portability more than just a word. Lightweight castings, extrusions and sheet have cut important pounds off a wide range of tools. One fourth the weight of iron, Magnesium brings real savings in

manpower and reduces worker fatigue. Yet Magnesium provides the strength and durability that is a must in portable equipment.

If you are buying portable tools for your needs, look for the brands that are made of Magnesium. You'll find they give that lightweight factor that helps cut costs.

If you manufacture equipment that must be moved, investigate Magnesium. Write us for further information on this versatile product. THE DOW CHEMICAL COMPANY, *Magnesium Department*, Midland, Michigan.

*you can depend on* DOW MAGNESIUM



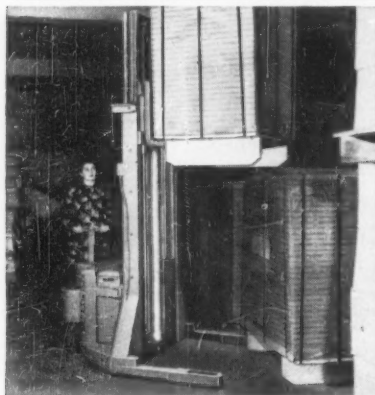
## What security is tailor-made for PENSION FUND Investment?

The informed investor of pension, insurance or endowment funds seeks a dependable average yield over a long period and definite return of principal at fixed maturity dates. Railroad equipment trust certificates fill these requirements as though tailor-made for them. They couple basic soundness with a wide choice of serial maturities that fit perfectly into the actuarially calculated investment program. Too, these issues are available to yield as much as 3%, frequently more.

*These prime obligations of America's railroads are represented by several desirable issues in our latest offering list. Send for it without cost or obligation.*

### HALSEY, STUART & CO. INC.

123 SOUTH LA SALLE STREET, CHICAGO 90 • 35 WALL STREET, NEW YORK 5  
AND OTHER PRINCIPAL CITIES



**GOES PLACES IN NARROW SPACES—**  
Revolvator Go-Getter Powered Hand Truck permits maximum use of storage or productive areas. The compact model shown above is a Hi-Straddle Lift with fingertip control—fully automatic 200° turning—no operator training. Let us know your problem and we'll help you solve it. Phone or write Revolvator Co., 8702 Tonnele Avenue, North Bergen, N. J. Union 3-8120.

## Does Your Letterhead Help or Hinder Sales?

Send for your FREE copy of our brochure "Letterhead Logic" and turn to the check-list used by experts to gauge letterhead efficiency. See whether or not your letterhead is doing the kind of selling job it should. If it's not, we're at your service.

Learn how Hill's 39 years of specialized experience—producing the finest engraved stationery for hundreds of famous firms—can be put to work for you, to help you achieve a letterhead you'll be proud of... one that truly reflects the character, personality and prestige of your firm... a scientifically designed letterhead with built-in sales appeal... and at prices much lower than you'd expect.

"Letterhead Logic," containing impressive samples, is free—without obligation—to users of 5,000 or more letterheads a year. Simply jot down the quantity your firm uses on your present letterhead and mail to Hill now.

WRITE, DEPT. D-3

### R.O.H. HILL, INC.

Fine Letterheads and Business Cards

270 Lafayette Street • New York 12, N.Y.

Automatic Merchandising Association, 7 South Dearborn Street, Chicago 3, Ill. They've just published a directory which lists the trends and problems of each of the sixteen major categories (from bulk vending to pastry) with analyses of expected growth. Lists of equipment manufacturers and suppliers show type of production facilities, methods of selling, names of executives.

• Sidelight on sales-building industrial research: Industry's share of the total research expenditures in this country actually dropped from 57 per cent in 1941 to 38 per cent in 1952. Even though industry's research costs almost tripled during this period, government research jumped over five times to over \$2 billion annually, much of this in atomic development.

• The sales outlook for 1954 is looking up. So far, year-end forecasts seem to be more optimistic than those appearing in the third quarter. Largest group forecast made annually is the poll of economists made by the F. W. Dodge Corporation, construction specialists. This year 138 leading economists quizzed said they think 1954 will be the second best year on record—only a slight dip from 1953's boom. This may be particularly significant in view of the fact that economists, as a group, are usually more bearish than business men.



### Trimming prices to size

Above is the price list dealers dream of. For Parker Pen it represents the final step. First try was a "Select-o-charge" wheel, but that couldn't be rigged for price changes. Second try was a single-size price sheet; verdict: too often lost. Next a flat-charge pricing policy—another dealer's dream—made possible this blotter-size, heavyweight placard.

See Better! Work Better!

# LUXO LAMP

—Acclaimed the World over as the best light to work under!



## How do YOU handle TRAVEL EXPENSES?

When your traveling personnel reimburse themselves by means of controlled, protected TRAVELETTERS, your company benefits by saving the administrative and clerical costs of expense checks, by speeding auditing procedures, by improved expense control. And the traveling man becomes more efficient without the worry of being delayed or stranded without funds.

Here's a partial list of TRAVELETTER users:  
American Cyanamid Co.  
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Commercial Solvents Corp.  
Diamond Alkali  
The A. C. Gilbert Co.  
International Cellulose  
R. G. LeTourneau, Inc.  
The Lionel Corp.  
Pennsylvania Salt Mfg. Co.  
Prentice-Hall, Inc.  
Sunkist Growers, Inc.  
True Temper Corp.  
Western Electric Co.  
Wm. Wrigley, Jr., Co.

You'll be pleased to learn of the advantages your company can enjoy by using TRAVELETTERS too! Write for information.

TRAVELETTER CORPORATION  
Since 1894

22 West Putnam Ave., Greenwich, Conn.



## MUSEUMS

Continued from page 56

inexpensive souvenirs. The Home Insurance Company has received over 40,000 unsolicited comments on its book dealing with the history of firefighting. The material and illustrations were gleaned mainly from the company's collection.

If your product is a consumer item, a combined showroom and retail store in conjunction with your museum is a natural. Company experience has been that most visitors to the museum and the plant, if a tour is part of the visit, go in the store to look, buy when they get home. Since visitors are mostly out-of-town, local outlets seldom complain.

An application center is a must if your product is slated for industrial use. One large company currently has three research projects in the works as a result of inquiries stimulated by its display of product uses.

Many companies find that the impact of their collections is increased by providing them with realistic atmosphere. At Thompson Products,

Inc. the historical automobile exhibit is housed partly in a replica of a main street during the 1890's with life-sized models of saloonkeepers and merchants and wooden sidewalks. A Paramount Technicolor short showed scenes from the Thompson museum in over 9,000 movie theaters. The authentic 1800 firehouse in the Home Insurance Company's collection has appeared in *The March of Time*.

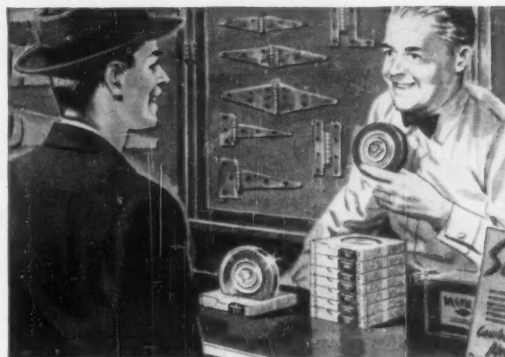
Seasoned museum directors emphasize there is no substitute for quality and authenticity. It is better to have a complete, small and unassuming collection than a large amassing of gimcracks and gee-gaws. Whenever possible, spotlight a part of your collection for maximum interest. Many companies with smaller museums do this by borrowing from other concerns and from private and public collections. Place your exhibits in as dramatic a setting as possible. Train your staff to know the exhibits, their uses, and their backgrounds. Then, don't let your museum become a museum piece, make it an active part of your community, selling, and advertising programs.

## METAL EDGE

### pays dividends in 3 ways

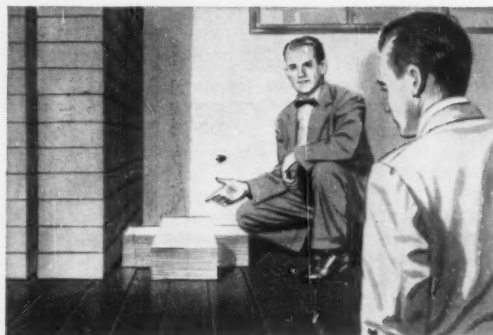
#### ADDS DISPLAY VALUE!

"Dealers are sold on our quality line and on our distinctive M. E. display box. Precision-printed to resemble fine leather . . . it protects our tapes . . . has re-use value for customers."



#### LICKS STORAGE PROBLEM!

"A new display for a new line doubled our box inventory . . . but created no storage problem! We store M.E. 'flats' for both lines in 20% of the space required for ordinary boxes."



#### SAFER HANDLING... FASTER INVENTORY!

"We use M.E. exclusively for materials handling and inventory control. Parts are fully protected during production, storage. We saved enough to pay for installation of the M.E. system after one inventory."



**METAL EDGE—the engineered method—has solved diverse packaging and handling problems in over 100 American industries.**

## NATIONAL METAL EDGE BOX CO.

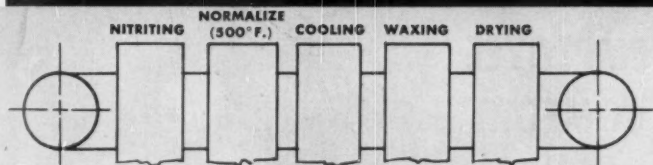
PACKAGING • MATERIALS HANDLING • INVENTORY CONTROL

1210 Callowhill Street, Philadelphia 23, Pa.



## CAMBRIDGE WIRE MESH BELTS

### help spring producer boost output 350% in 30% less floor space!



110 old-fashioned hand trucks no longer needed! 15 truck operators freed for more productive work! Floor space requirements cut by 30%. Output rose from 290,000 pieces in 24 hours to 680,000 pieces in 16 hours, an hourly increase of 350%.

These were the results of this installation of a 98' Cambridge wire mesh belt in a large spring producing plant. The moving belt gives continuous production, eliminates the need for hand trucks in transferring the work from one step to the next, assures uniformly processed work.

Perhaps Cambridge wire mesh belts can help you get similar savings. They're available in any metal or alloy, mesh or weave, length or width. They can be used under practically any conditions . . . from temperatures as

high as 2100° F. down to sub-zero, for handling work through simple water rinses or highly corrosive acid sprays, for carrying small delicate parts or heavy, bulky loads. All-metal belt construction assures long life and freedom from damage. Open mesh permits free drainage of process solutions or free circulation of process atmospheres.

**Why not call in your Cambridge field engineer?** You can rely on his experienced advice to recommend the right type of wire mesh belt for your process. Look under "Belting-Mechanical" in your classified phone book for the Cambridge office nearest you.

Cambridge Duplex Weave, one of the most widely used specifications for continuous heat treating.

**FREE BELT MANUAL** tells how Cambridge belts can be used in your industry. Also includes useful data on conveyor design, metallurgical tables and belt specifications. Write for your copy today.



## The Cambridge Wire Cloth Co.



Department 1 • Cambridge 12 Maryland  
Offices in Principal Industrial Cities

## SAVE ON BULK MATERIALS

*After you buy them*

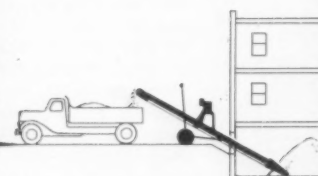
You can't do much to cut the cost of bulk materials delivered to your plant. You can save considerable man power, time and money in moving them from the siding through your plant—with B-G Permanent and Portable Conveyors.

### A Special CONVEYOR SYSTEM FOR YOU FROM *Standard* BARBER-GREENE UNITS

#### PORTABLE



One man with a B-G Portable Conveyor, can unload from hopper car to stock pile, surge hopper or plant conveyor . . . cutting costs as much as 90%. B-G Conveyors can be moved all over the yard and inside the plant.



Portability and low clearance make B-G Conveyors ideal for working in cramped, low head room areas. Extensively used to elevate and convey ashes, waste, scrap to trucks.

#### PERMANENT



The B-G Redi-Fab Series of Permanent Conveyors assures the right combination of standard units to exactly fit requirements for elevating and conveying bulk materials to storage, or feeding direct to your production line.

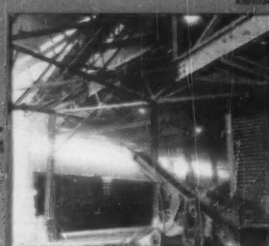


B-G Redi-Fab Conveyors form high-capacity, low-cost, "built-in" production lines—for more efficient in-plant handling. Increase capacity by moving materials through your plant faster. Reduce production costs and help offset rising labor and other costs.

#### UNLIMITED COMBINATIONS



B-G Portable and Permanent Belt Conveyors team up in almost unlimited combinations to completely mechanize handling of bulk materials from receiving, through processing, to shipping. You have an opportunity to make important savings with an efficient B-G materials handling team.



This chemical plant uses a series of B-G Permanent Conveyors to handle component parts of the product and a model 363 Portable for overflow stockpiling.

**Barber-Greene**   
Aurora, Illinois, U. S. A.

## BUSINESS WAYS

*Continued from page 60*

tractors, in turn, may have to redraw those blueprints again to fit their practises. It takes about 6,000 engineering drawings to build the average combat vehicle.

At one industrial laboratory, fifteen men do nothing but analyze requirements for drawings for federal work. Drawings of an identical object will differ substantially if they come from different governmental departments, or from different bureaus of the same department. Westinghouse Electric Corporation stated a year ago, "Tremendous savings would accrue if it were possible for the several services to standardize and simplify their drawing requirements. In some cases it requires more time to make the drawings than it does to produce the apparatus."

I know of one large corporation where engineers must spend three or four days of special training on blueprints and drawings when they are transferred from one department to another. They spend it learning the unfamiliar drafting

practises used in their own company.

A few years ago, one of the large automobile companies undertook to produce a plane engine designed by an American manufacturer. It could not accept the designer's blueprints and actually tore apart one of the engines, measured every part, and made new drawings from the parts to its own style.

The same engine designer, in turn, was redrawing the blueprints on an after-burner he had received from a manufacturer of electrical equipment.

We need, secondly, to harmonize our national standards with those of our allies and friends. Such standards are essential if the countries involved are to obtain the greatest possible economy in the use of their resources and effort.

Here again we are all better off than we were ten years ago. In the last war, our ordnance men and manufacturers scrambled madly and expensively to get new taps, dies, and gages to produce the English thread on every bolt, pipe, and

**NEW**

## EMPLOYEE COMFORT

AT

Standard Railway  
Equipment Mfg. Co.



### BEAUTIFULLY EQUIPPED WITH BERGER STEEL LOCKERS

This new Hammond, Ind., plant is a modern industrial showplace. Prominent among its many up-to-the-minute features are clean, bright locker rooms—all equipped with Berger Steel Lockers.

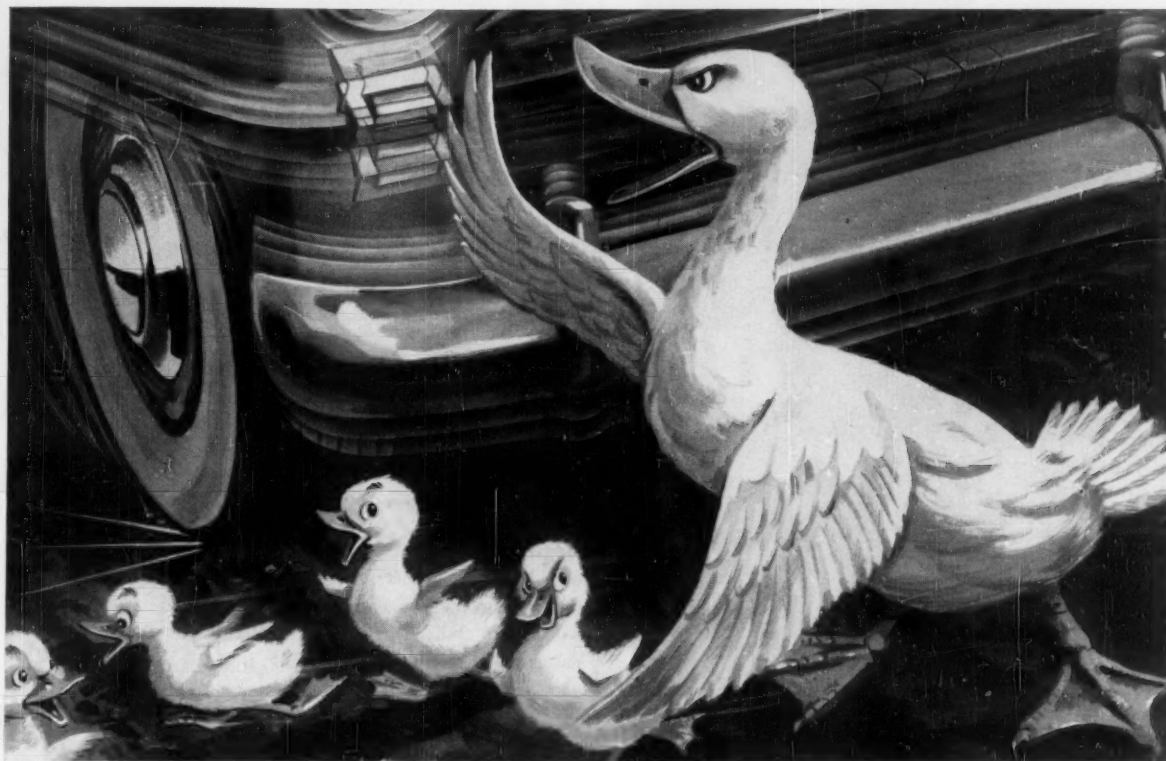
Berger Steel Industrial Lockers are a long-lasting investment in good employee relations. Neat, orderly locker and dressing rooms go a long way toward building and holding employee loyalty.

Your local Berger representative is well-qualified to plan and install an equally efficient and workable locker grouping in your plant—or to help bring your existing locker facilities up to date. Without obligation, call him in, or write us for full information.

**BERGER MANUFACTURING DIVISION**  
REPUBLIC STEEL CORPORATION  
1048 Belden Avenue • Canton 5, Ohio

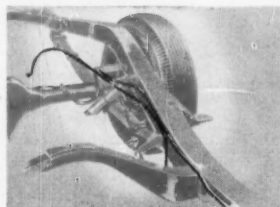




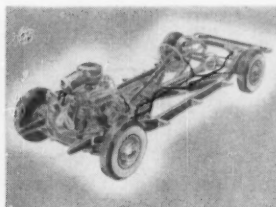


## Who makes your safe stops possible?

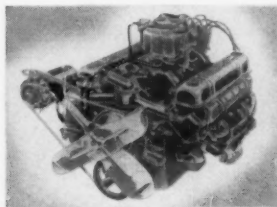
You're hurrying home after a long weekend. You slam on your brakes. You stop — safely. You can take safe stops for granted — thanks to the men who engineered and built your car. For one thing, safety-conscious designers and engineers gave you brake lines of Bundyweld Tubing, *fifteen times stronger than necessary to protect your life*. Bundyweld won't leak, won't burst, won't give in to harmful vibration, won't fail you when you need it.



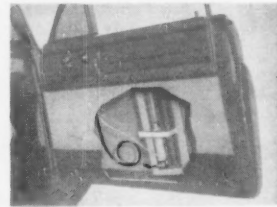
No need to worry when you tramp down on your brake pedal. With brake lines of Bundyweld, you'll have no brake failure due to brake-line leaks or ruptured tubing walls. Millions of motorists have traveled billions of miles of stop-and-go driving safely, thanks to Bundyweld and the extra protection it brings.



The gasoline lines strung under your car take a steady beating from flying rock and from punishing vibration. They don't leak, don't collapse, don't get you into trouble. Made of rugged, dependable, double-walled Bundyweld Tubing, they'll last throughout the lifetime of your car and then some.

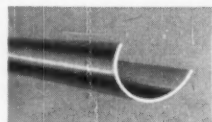


Leaks in your oil lines spell trouble — in delays, big repair bills, even a ruined engine. But Bundyweld oil lines are leak-proof, extra-strong, trouble-free. Bundyweld dependability is so well established that Bundyweld's used in 95% of today's passenger cars in an average of twenty applications each.



Do you have automatic window lifts? Or hope to some day? You'll be glad to know that hydraulic window-lift lines of Bundyweld Tubing are dependable, foolproof, leakproof. Unfailing lines of Bundyweld Tubing help the manufacturer of your car give you performance-plus — all the time!

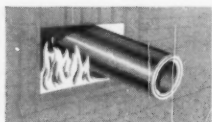
### Why you're safer with Bundyweld Tubing



1. Bundyweld Tubing begins as a single strip of tough, accurately rolled, copper-coated steel.



2. We carefully roll the single strip of steel like this, make it into a long, double-walled tube.



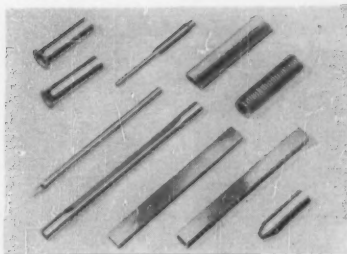
3. We take the rolled-up tube, fire it in a furnace, where the copper bonds solidly with the steel.



4. Result: Bundyweld Tubing: double-walled and extra-strong; copper-sealed and leakproof.

**Bundyweld®  
Tubing**

"The lifelines of your car"  
BUNDY TUBING COMPANY  
DETROIT 14, MICHIGAN



#### (a) Precision Fabrication

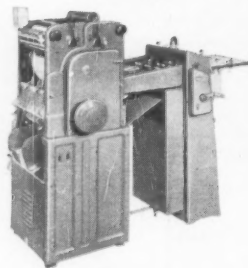
(a) A good example of close tolerance fabrication of stainless steel tubing are these fabricated parts made by J. Bishop & Co. Platinum Works, Malvern, Pa. According to Bishop they can be held to tolerances of  $\pm .0005$  where need be, depending upon design, and can be produced quickly and economically because Bishop, one of America's leading quality stainless steel redraw mills, is the **ONLY** redraw mill that specializes in fabricated parts. "Under one roof" redraw and fabrication facilities save you time and money because there is no extra handling, no extra transportation charges, eliminates specifying the wrong type tubing and avoids waste. On your next stainless steel tubing or fabricated tubular parts requirement, specify Bishop and save.

Performance  
Proves . . .  
Bigger Savings  
Better Quality  
with  
Bishop  
Prefabricated  
Tubular Parts and  
Stainless Steel  
Tubing (.008 to 1" OD)

J. Bishop & Co.  
Platinum Works  
Malvern, Pa.

## If it's a question of printing, *Davidson* has the answer

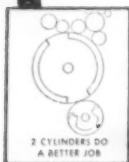
- Top quality printing for less than the usual cost of mediocre printing.
- Clean, sharp line work . . . excellent half-tones . . . fine multi-color work.
- Full ink coverage and positive stripping of even the most heavily inked forms.
- Accurate register equalled only by that of larger, higher priced presses.
- Quick starting and simple operation prevents costly delays.
- Precision engineering and rugged construction for years of low cost, trouble-free service.
- The only press that does offset printing, dry lithography and all forms of letterpress printing.
- The only press that will print and emboss in one operation.



THE  
**Davidson**  
*Dual*

Write for literature . . . and let us arrange for a demonstration. There's no obligation.

**DAVIDSON CORPORATION**  
A Subsidiary of Mergenthaler Linotype Company  
Dept. 18, 29 Ryerson St., Brooklyn 5, N. Y.



nut we supplied to England, and we sent many shiploads of spare American parts to England that a standard screw thread would have made unnecessary. After the war, America, Britain, and Canada agreed on a unified standard thread which is now being used on virtually all military goods produced in the three countries, and on about half their civilian product. We have smoother and less expensive interchange with Canada and Britain to-day because of that agreement, and we have won added security for all three nations that no amount of money could buy.

A comparable standardization of drawing and drafting practises among America, Britain, and Canada is probably the most important single step these three democracies could now take to get better use from their combined industrial resources. It could also be one of the easiest. All three nations speak in inches, feet, and pounds. They have no commercial advantage to gain by protecting their drawing procedures. The basic problem is simply one of differences in technical opinion and practises hardened through decades of custom. Those who have spent many years working in international standards have seen much more complex differences finally resolved.

What is lacking is simply the desire to co-ordinate, and an understanding of the importance of international negotiation of the problem. The first responsibility rests with top management men in all three countries, for the simple reason that standardization is a top management responsibility. On the technical level it can be carried out by technical men; but only management can give these men the support and basic initiative they need.

The leaders of American indus-



"You've been with us nine years, Sheppard. That's a lot of salary down the drain."

#### THE REAL COST OF SHELVING IS THE ERECTED COST



# 3

reasons why

## De Luxe Steel Shelving

costs you  
less

- 1 **Fewer Parts**—DeLuxe has designed one part where ordinary shelving uses three. Example, our bin-type "I-Beam" upright. Fewer parts mean fewer man hours to install.
- 2 **80% Less Bolts**—DeLuxe shelving uses patented, boltless shelf brackets, thus requires no tools for either installation or adjustment.
- 3 **100% Adjustable**—Shelves in each section are independently adjustable, without disturbing other contents. DeLuxe shelving erects on the spot, in position where you want it . . . the only shelving that does all this.

There is a DeLuxe factory representative in your area who will give you our engineering, planning and layout service without obligation. Write today for free catalog.



**De Luxe Metal Furniture Co.**  
301 Struthers St., Warren, Penn.

For over 25 Years Manufacturers of: Storage Shelving  
Library Shelving • Storage Cabinets • Shop Equipment



*Famous for saving space and  
increasing protection but*

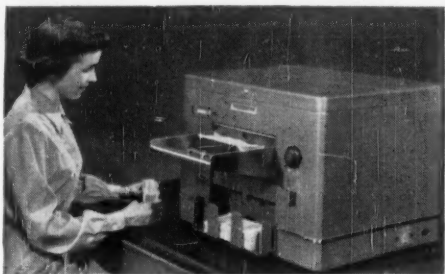
Do you know its  
most important  
use today?



**T**HIS may come as something of a surprise to you... but 65 different types of business, thousands of concerns, are now using Recordak Microfilming *primarily* to end costly manual record-keeping in their daily routines. *Routines which are undoubtedly similar to some of yours.*

The way Recordak Microfilming cuts record-keeping costs as much as 85% is little short of amazing.

In just one minute a Recordak Bantam Microfilmer (below) will give you copies of more than 500 check-size documents or 250 letter-size ones. And each copy is photographically accurate and complete... yours for a fraction of a cent.



Business and industry have correlated this speed, accuracy and economy with their existing routines to effect sensational savings. For example—

Billing Clerks are able to handle 4 times as many accounts

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Duplicate posting to statement and then ledger has been eliminated.

**And**, of course, when you use Recordak Microfilming in daily systems work, you automatically get space savings up to 99% and increased protection as extra dividends.

**It will certainly pay you** to double-check your routines with a Recordak System Man *soon!*



He has thousands of case histories at his fingertips... and the chances are good he can point to companies of your type and size who are now using Recordak Microfilming most profitably. In addition, he'll leave you all the facts on the complete line of Recordak Microfilmers designed for all requirements, all budgets... *and available on an attractive purchase or rental basis.*

**You'll be under no obligation whatsoever...** just write to Recordak Corporation (Subsidiary of Eastman Kodak Company), 444 Madison Avenue, New York 22, N.Y.

*"Recordak" is a trade-mark*



**RECORDAK**

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to business systems



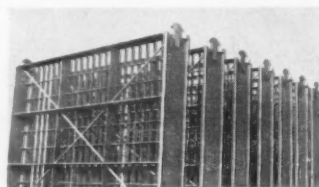
—by special delivery

AS a precaution against foreign objects being sucked into turbine propeller blades, in the huge TVA hydroelectric power system, intake water passes through "trash racks."

At Pickwick Landing Dam, there are six propeller turbines of 48,000 H.P. each, activated by the flow of 8,000 to 12,000 cu. ft. of water per second . . . more than 500,000 gallons per minute for each turbine, at full capacity.

To equip units 5 and 6 at Pickwick Landing, International Steel contracted to furnish the Trash Racks. 36 welded steel assemblies were supplied. Half of these were 20 feet square and weighed 8 tons each. The total shipment amounted to 252 tons.

Such unwieldy structures required forethought in handling and shipping. Transportation was by river barge from Evansville direct to destination.



Such unusual problems are taken in stride at International Steel.

So—if you have a bothersome problem in steel fabrication, you will find us ready to work with you towards its solution. Write, wire or phone the Special Projects Director at International Steel Co., Evansville, Indiana.



1964 EDGAR ST. • EVANSVILLE, IND.

**INTERNATIONAL STEEL COMPANY**

try could take steps within weeks which would lead to a comparatively quick solution of this most pressing and costly standards problem. Working with other American business men, and through their delegates with business men in Canada and Britain, they could order an end to the chaotic practices that now prevail in drawing and drafting, and are seriously impeding the rearmament program of the NATO alliance. I beg them, as sincerely as I know how, to take those steps—to give the command decisions that will make men go into meetings determined to draw up international principles and resolved to find a solution to the difficulties that now prevent unification.

#### Job for all

This is not a job for governments. It is a job that can be done only by the individual enterprises working in co-operation with the governments in the countries concerned. American business and industry can do the job here through the great trade associations, technical societies they have created—the

organizations of civil, chemical, electrical, mechanical, automotive, and tool engineers, the groups of manufacturers, the association of purchasing agents, and the scores of others. These associations and societies can do it both within their own industries and by working through the organization they have set up as a clearing house for national standards, the American Standards Association. They can do it through the International Organization for Standardization, which they helped to create in 1946 and which now has several score technical committees at work on a large variety of international standards problems.

The time is ripe as never before for establishing such standards among our friends. Our prestige has never been so high among European industrialists, engineers, and technicians. Where the atmosphere before the war was chilly and jealous, we now hear pleas for American leadership and co-operation. Europe is eager for the first time to hear us discuss industrial techniques, methods, and standards, and is willing to mesh its sound

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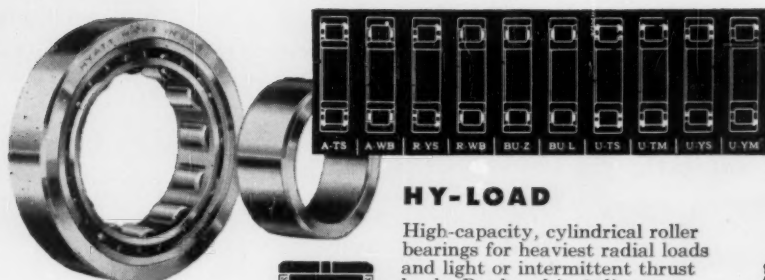
Name \_\_\_\_\_

Firm \_\_\_\_\_

My Title \_\_\_\_\_

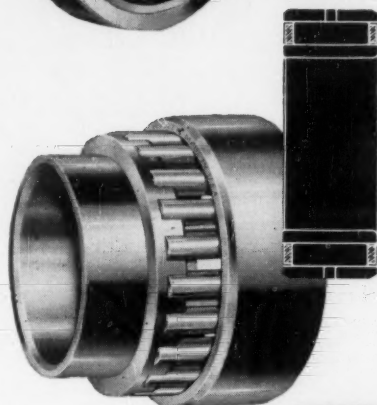
Address \_\_\_\_\_





#### HY-LOAD

High-capacity, cylindrical roller bearings for heaviest radial loads and light or intermittent thrust loads. Produced in 3 diameter series, 2 widths and more than 800 sizes.



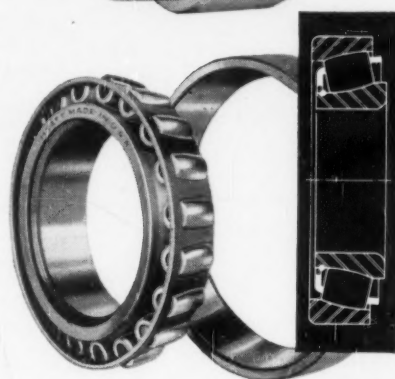
#### INDUSTRIAL INCH

Designed for slow-moving, heavily loaded machinery where large-diameter shafts are the rule. Accordingly, it is available in fractional-size bores for shafts from 4" in diameter upwards.



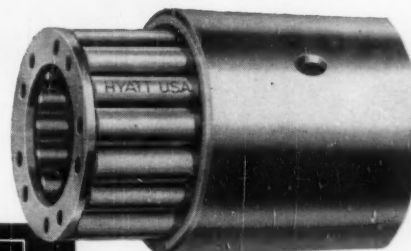
#### WOUND ROLLER

This is a three-part separable bearing available in various width classifications. The roller construction provides maximum resistance to shock, abrasion and fatigue.



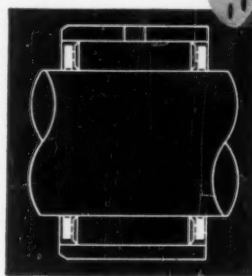
#### BARREL

A series of angular-contact, self-aligning bearings capable of sustaining both radial and thrust loads. Race and roller curvatures insure ideal distribution of load, not only for normal operation but also for conditions of misalignment.



#### TRUNNIONED ROLLER

Ideal for industrial trucks, textile machinery, gear pumps, conveyors, hoists and agricultural equipment. Rollers have trunnioned ends which fit into holes in the end rings. End rings are located and held parallel by spacing bars which also guide and retain rollers.



**DESIGNED  
FOR  
HEAVY  
DUTY...**

# HYATT ROLLER BEARINGS

**...and there's a type and size for every need**

Hyatt's complete line of radial and angular-contact bearings—more than 800 sizes in the Hy-Load series alone—makes the engineers' job easier, because it makes possible greater design flexibility. For the equipment buyer, this means longer bearing life and lower maintenance costs—with just the right bearings designed into every vital load-carrying position.

The next time you buy new equipment, or make a changeover, specify lower maintenance costs by specifying Hyatt Bearings! And if you need technical help in your selection of bearings, or desire information about particular bearings or their applications, ask for the services of a Hyatt sales-engineer. Call or write Hyatt Bearings Division, General Motors Corp., Harrison, N. J.

**HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION**



# Wrap Out Rust

with **NOX-RUST**  
Vapor-Wrapper

**New Chemically Active paper—in sheets, rolls, bags, envelopes and caseliners—blocks rust in one simple operation.**

A prominent piston manufacturer reports Vapor-Wrapper cut packaging costs 75%. Another company saved \$15,000 a year packaging precision office machines. Numerous others tell of savings just as dramatic with Vapor-Wrapper rust-preventive paper.

The volatile chemical within Vapor-Wrapper paper is an exclusive development of NOX-RUST laboratories. It makes moisture-laden air non-corrosive . . . without the need for an airtight package . . . without deposits


forming on the metal during shipment or storage.

Vapor-Wrapper rust-proofs everything from cotter pins to printing presses—cleaner, faster, at lower cost! It delivers products "factory-fresh" . . . ready for instant use. Plan today to cut costs and improve service in your business with NOX-RUST Vapor-Wrapper.

**Vapor-Wrapper conforms to Military Specifications, MIL-P-3420. Packaging Materials, Volatile Corrosion Inhibitor Treated.**

Let a NOX-RUST "Corrosion Specialist" show you what this amazing paper can do in your plant!

Clip this coupon to your letterhead—Mail Today!



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Dept. 114, 333 N. Michigan Ave.  
Chicago 1, Ill.

☐ Please send booklet on Vapor-Wrapper, the paper that wraps out rust.  
☐ Have a NOX-RUST "Corrosion Specialist" call on me.

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Firm Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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Chemical Corporation  
333 North Michigan Ave.  
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Offices in Principal Cities  
• Volatile Corrosion Inhibitors  
• Rust Preventive Compounds • Metal Cleaners  
• Automobile Undercoatings • Sound Deadeners

technical thinking and advanced research work with ours, to the mutual benefit of both. For our own military security now as well as economic stability of the world to come, there is good cause for us to take full advantage of that opportunity.

As the Russians speed up the economic integration of Eastern Europe, they also count on our own plans for economic union to fail. A few weeks before his death Stalin spoke of "sharpening conflicts within the capitalist world." Russian editorials have talked of new evidences of rising opposition to the policies worked out under



The AUTHOR

WILLIAM L. BATT retired last Fall from three positions he held in England during the past two years; Minister for Economic Affairs to the United Kingdom; chief of Special Mission to the United Kingdom in charge of ECA and MSA administration; and US Member of the Defense Production Board of the North Atlantic Treaty Organization (NATO).

He has received engineering degrees and doctorates from Purdue University, Stevens Institute, Drexel Institute, and the University of Pennsylvania. Following his early scholastic studies he joined the Hess-Bright Manufacturing Company and when that company became affiliated with SKF Industries in 1919, he became general manager and then president. He remained president until 1950.

During his tenure at SKF, Mr. Batt was a member of the President's Special Commission to Moscow with the rank of minister in 1941 and served as vice-chairman of the War Production Board during World War II. He is a member of several engineering associations and institutions.

American leadership. If Russian hopes are justified, more nations will be dragged one by one, protesting but helpless, into the Russian blackness. The line of barbed wire fences, mine fields, and Russian border police that shut in whole populations will shift farther westward across Europe.

In order to stop and roll back that creeping terror, we must help the other nations of the Western Alliance to rearm. We run the risk of unforgivable delay if we do not make best use of a tool that can help us do that. Surely, in time of war or near war, we will not commit the intolerable error of allowing the small, dangerous differences to go on that slow and confuse the production of the free nations.

THE END

## WE PUT PRODUCT IDEAS TO WORK

—for industry and agriculture

FMC's qualified organization is constantly translating new product ideas into commercial equipment for industry and agriculture.

If you have a new development or product idea that might find application in one of the following fields—agriculture, food preparation and processing, packaging, automotive servicing, power gardening, and pumping equipment—we are interested.

Unpatented ideas must be submitted on our disclosure agreement form, available on request. We are not responsible for unsolicited material.

For full information on how FMC successfully puts ideas to work and how you may submit your own new development or product ideas for consideration, write for special brochure DR-1152.

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AND CHEMICAL  
CORPORATION**  
Organization Planning Dept.  
P. O. Box 760  
San Jose 6, California

## A planned service award program PAYS GREATER DIVIDENDS!

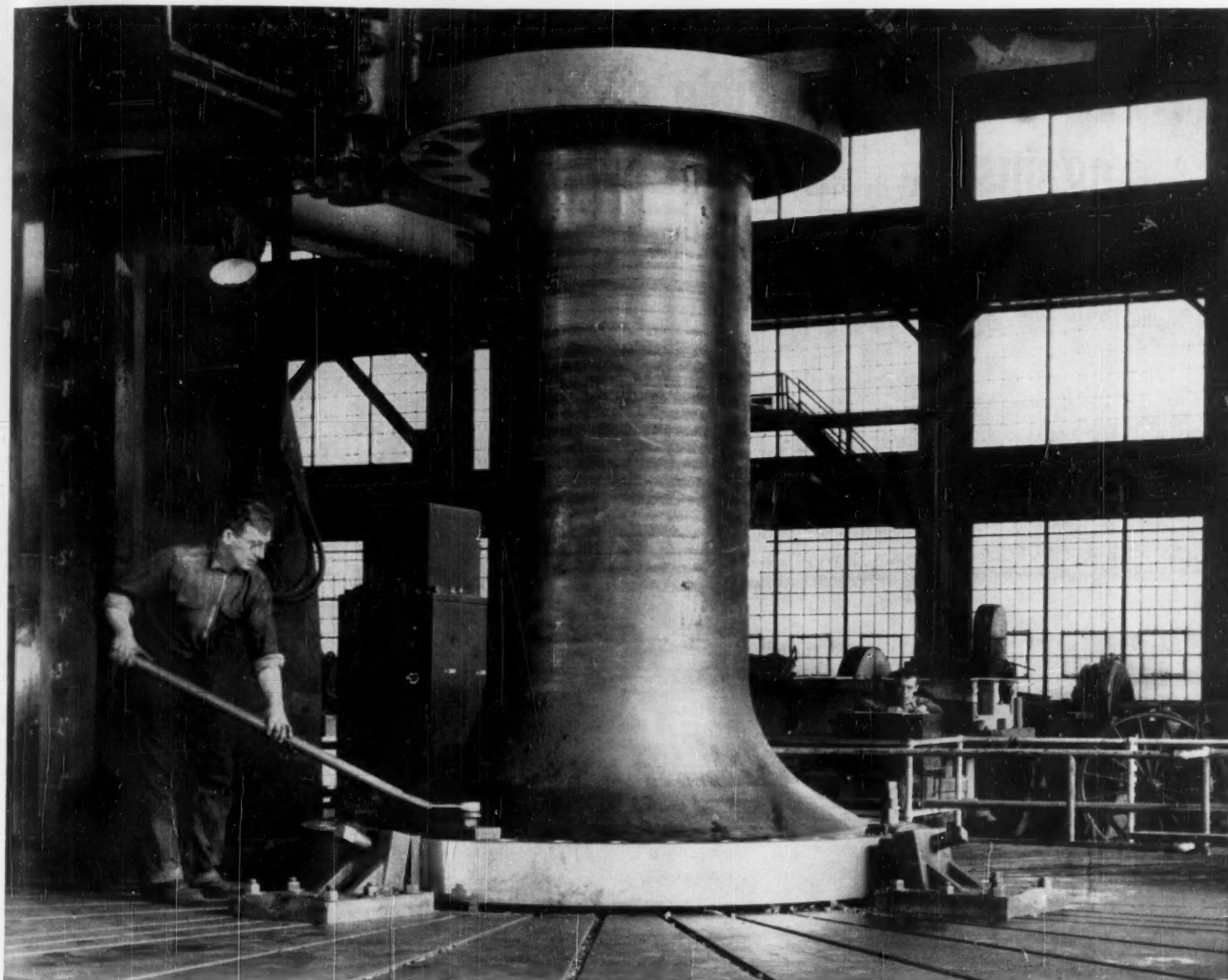


A planned service award program frees you from the inconveniences and confusion of haphazard methods . . . means years of trouble-free operation . . . helps to improve employer-employee relationship.

I & R's experience in formulating a program to meet your requirements is available to you—with no obligation, of course.

**IRONS & RUSSELL COMPANY**  
Emblem Manufacturers Since 1861  
95 Chestnut Street, Providence 3, R. I.





## TO HELP MIGHTY COLUMBIA RIVER BRING POWER TO PACIFIC NORTHWEST

This 38-ton forged shaft is one of several that Bethlehem is supplying for the hydroelectric plant at McNary Dam, on the Columbia River. Waters controlled by the \$280,000,000 dam will provide the power for a generating system with a capacity of nearly a million kilowatts.

As shown here, the steel shaft is about to be removed from a vertical boring mill at one of the Bethlehem plants. It is a massive thing, almost 11 ft long and nearly 4 ft in diameter at the smallest point. The larger of the two flanges has a diameter of 8 ft, 9 in.

The customer's order specified that all the finish-machining except the bolt holes be done by Bethlehem.

The big forging is a good example of the heavyweights we are frequently called upon to handle. In contrast, we produce forgings as small as a child's finger. Some of the biggest and some of the tiniest forgings made can often be seen at the same time in the Bethlehem shops.

When you are next in the market, we shall be glad to go over your needs with you and to be of service in any way possible. Call us whenever you think we can help.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

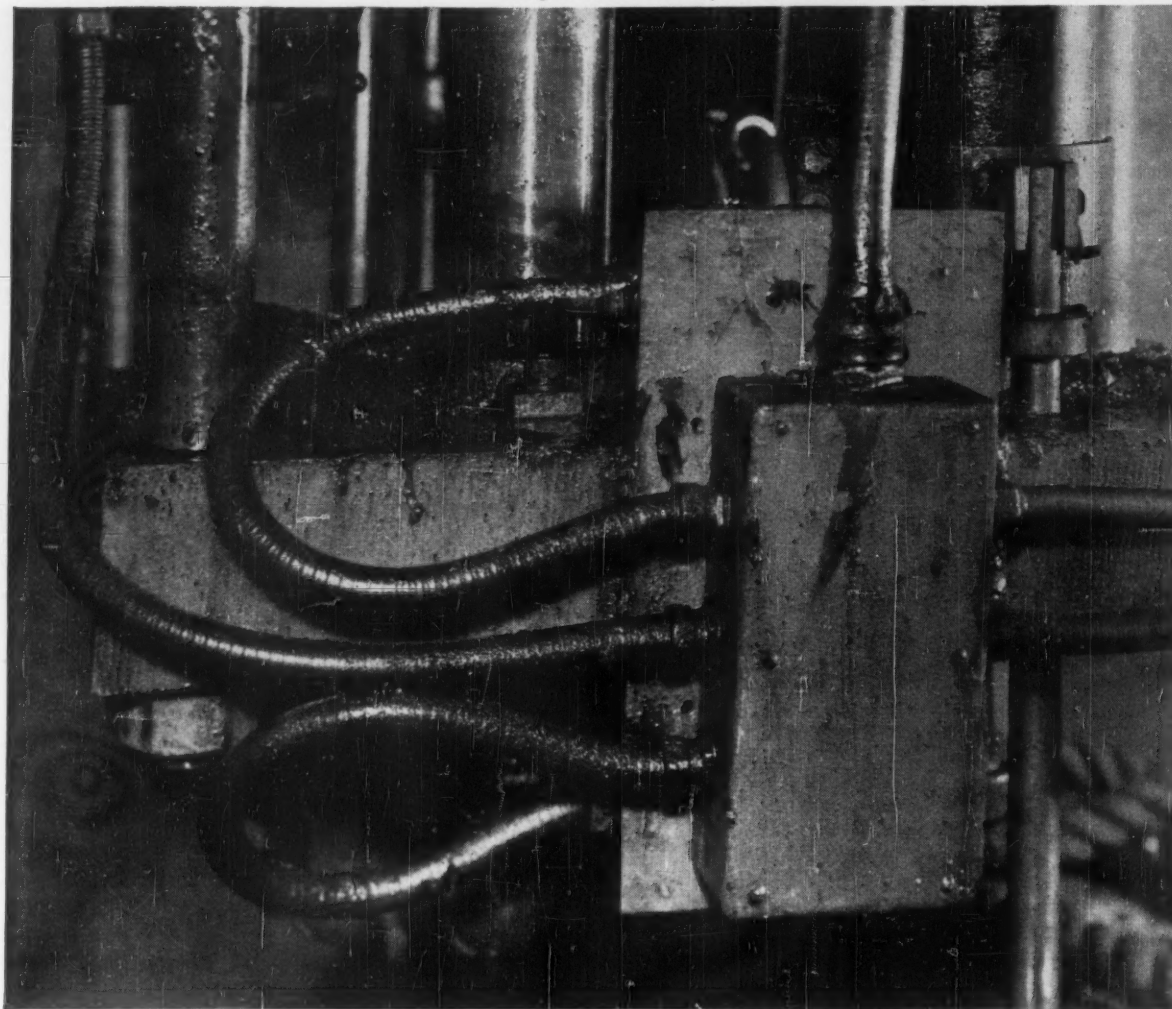
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation  
Export Distributor: Bethlehem Steel Export Corporation

# BETHLEHEM STEEL



# SEALTITE flexible conduit protects wiring against oil • grease • water • corrosive fumes • salt spray • and chemicals

Tough conditions for any wiring . . . but no tougher than protective SEALTITE



## Keep foul-up and corrosion out of your lead-wiring

**SEALTITE** Electrical Wiring Conduit is flexible, liquid-tight and tough. So tough it resists all the enemies of motor lead-wiring mentioned above and many more. It absorbs vibration. It installs easily in cramped spaces. It hugs motor contours. It looks neat.

Sealtite® has been approved by Underwriters' Laboratories, Inc. for use where exposed to moisture and mineral oils (See N. E. Code, Art.

351)—the first conduit of its type to meet these rigid requirements. For tight bends and extra-flexibility on machine tools and industrial equipment, you may want SEALTITE Type EF (Extra Flexible), which meets standards set by J. I. C.



Electrical Supply Houses stock both types in coils. Buy it this way; then cut without waste. Jobbers also stock stand-

ard fittings. Write for Bulletin UA-530 to *The American Brass Company, American Metal Hose Branch, Waterbury 20, Conn.* In Canada: *The Canadian Fairbanks-Morse Co., Ltd.*

•Trademark

63109

### SEALTITE

flexible, liquid-tight electrical conduit  
—an **ANACONDA**® Product



## Benchmark for employee illness data

WHILE PLANT medical programs aim chiefly at on-the-job hazards and absence-control plans concern themselves mainly with unexcused and inexcusable absences, there is data to suggest that involuntary absence caused by off-the-job hazards is a much more costly problem to industry.

The Research Council for Economic Security, last month revealing a preliminary draft of its Second Progress Report, provides some of the proof. The report covers a study of prolonged illness, that is, prolonged absences due to non-occupational disability.

Because figures are most easily collected for employed persons, and remedies would appear to be more readily available for problems among this group, the Council's current data concerns primarily workers in industry.

The Council a year ago reported on findings among a group of 36,675 employees over a three-month period. The current report covers the experience of 22,278 employees whose prolonged absences terminated in 1952. Establishments with more than a quarter million employees were par-

ticipating last year, or had committed themselves to take part in the Council's survey.

Considering a "prolonged absence" to be one lasting four weeks or more, the study found 16 such absences per 1,000 salaried male workers and 18 per 1,000 salaried female workers. But among production workers, the rate for women was 62 per 1,000, for men, 32 per 1,000.

An even better indication of the cost to employers is given by the number of workdays lost, resulting in delays, less efficiency, need for recruiting and training replacements, sometimes an increase in sickness compensation cost.

Women salaried workers, the Council found, lost 1,108 workdays per 1,000 employees; male salaried workers, 935 workdays. Female production workers lost 3,162 workdays, male production workers, 1,925, per 1,000 employees. Prolonged absences ran about 25 per cent of all absences lasting a week or more.

A second section of the current report deals with the nature and cost of illness in cases of prolonged absence, presenting invaluable data to management negotiators who are engaged in bar-

gaining with unions on fringe or welfare issues.

The Council, whose address is 111 West Jackson Boulevard, Chicago 4, Ill., expects to have a 1 per cent sample of the nation's employed workers in its final studies, with additional reports due one year and two years hence.

### Hearing-loss claim upheld in court

That industry has not yet solved the problem of claims for workmen's compensation for loss of hearing is shown in a State of Wisconsin Supreme Court ruling upholding such a claim.

The case (see "Noise Is News," *Modern Industry*, February 1953) involved a 60-year-old worker who took a job in a Wisconsin drop forge plant at age 54 and six years later asked for 333 1/3 weeks of compensation for loss of hearing.

Discounting for possible later recovery of a portion of the loss and for presumed partial impairment when the man went on the job, the State's Industrial Commission awarded him a substantial claim. Hundreds of cases were held

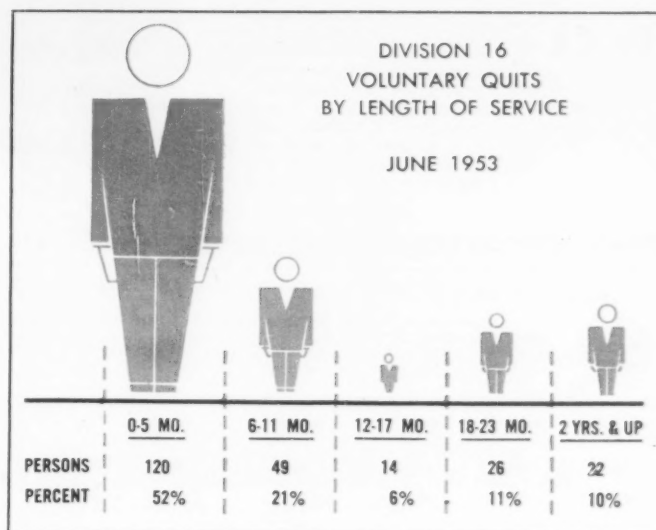
## Backing up the pep talk with a few facts

An excellent example of the new trend toward *treating* supervisors like management men, instead of just *telling* them that's what they are, is given in the *Management Info-dex* of the Hughes Aircraft Company, Culver City, Calif. The chart at right is from its first issue, devoted to new-employee orientation.

The chart and its data are part of a simple but instructive discussion of turnover, designed to impress on supervision the importance of getting the new employee started right. "If we can get our people over the first few months, and in many cases, the first few days, we have an excellent chance of keeping them," says this supervisory newsletter.

Also described in the first issue are the employment department's efforts along this line, and the entire orientation program, in which the foreman plays a leading role.

Part of the four-page *Getting Started* leaflet given new employees, incidentally, provides space for the worker to list his immediate superior's name, and that of each successively higher-ranking supervisor. It gives the employee a better understanding of organization structure, helps him identify himself with his team.



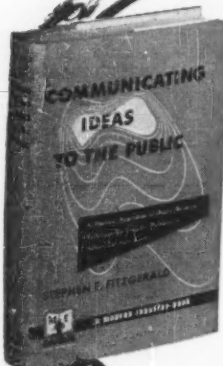
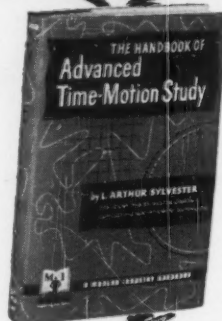


## MODERN INDUSTRY BOOKS

### THE HANDBOOK OF ADVANCED TIME-MOTION STUDY

by L. Arthur Sylvester,  
President, The Sylvester  
Company, Consulting Man-  
agement Engineers

A realistic and experimental approach showing how progress and development can be made in your company through a recognition of the supplementary nature of time and motion study. This book presents work in a three dimensional concept: the product of mechanical work, physical conditions and the human element, and clearly shows the mechanics of recording and evaluating time-motion observations. "A new and distinct step forward." — Eugene J. Bengé, Bengé Associates \$3.00



A new approach to the basic problem of public relations—human communications. Deals with the complex job of moving ideas from one head to another and analyzes all media, the techniques of organizing and planning public relations activities, and the new responsibilities of business to public groups. "An excellent book." — *The Public Relations Journal* \$3.50

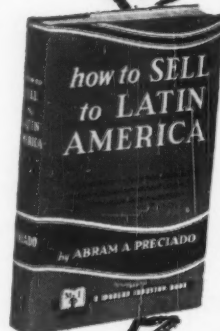
### Communicating IDEAS to the PUBLIC

by Stephen E. Fitzgerald,  
Public Relations Counsel,  
New York City

### HOW TO SELL TO LATIN AMERICA

by Abram A. Preciado,  
foreign trade expert and  
journalist

All the information you need to export successfully to Latin America and to the world. Provides you with the actual techniques, practices and procedures, with invaluable information on each of the 20 Latin American markets, and discusses the important international trade agreements furthering foreign commerce. An important book for exporters, executives of companies which export, and export managers. "A valuable addition to every exporters library." — *Advertising & Selling*. \$4.00



off while this claim was adjudicated.

Lower courts overruled the Industrial Commission, but the Supreme Court held them in error and confirmed the Commission's order. The state legislature has, meanwhile, amended the law to prevent such claims except upon proof of loss of earnings. But in other states, such a safeguard may be lacking.

Meanwhile, steps towards establishment of scientific standards in industrial noise and loss of hearing are underway. This month, the American Standards Association expects to publish a 60-page report of a study which will help management "estimate probable hearing loss of a group of individuals exposed to noise of specific characteristics over a given time."

### Accidents, absence cut by check-slogan contest

High degree of success in a safety and work-attendance program based on a paycheck-slogan contest has led the Union Bag & Paper Corporation, Savannah, Ga., to renew

the campaign—and add a community relations factor, as well.

A three-month trial of the slogan contest conducted last year saw accident frequency drop 28 per cent, and the gain has been held. The company is about to launch a new program, using safety slogans on the face of 5,000 weekly paychecks, and a brief item of information about the company on the back near the endorsement area.

The initial plan involved a weekly plant-wide drawing of an employee's name, with an award of \$50 in cash if the employee knew the week's slogan and fulfilled other qualifications. An additional drawing was made among names of employees in departments that had not had a lost-time accident in the last month. The drawee, if he knew the slogan and met the other requirements, won a television set.

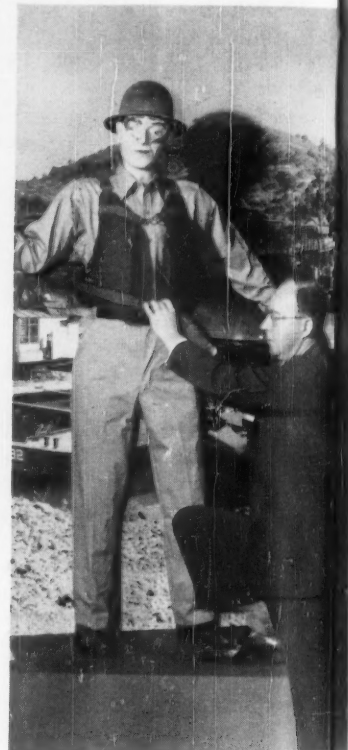
To win, besides knowing the slogan, the employee whose name was drawn had to be accident-free since the beginning of the contest or his later date of hiring, had to have a perfect attendance record in the

### What the safely dressed man will wear



Under heat

All dressed up in latest style—for that job—employee (left) of Walter Kidde & Company, Belleville, N. J., can work comfortably between tunnels of a huge gas furnace at temperatures up to 400° fahrenheit for 45 minutes;



Over water

Kidde and Guardian Safety Equipment Company, East Orange, N. J., developed it. For quite different use, attire at right, including life vest, Dravo Corporation supplied it.

MODERN INDUSTRY BOOKS, 99 Church Street, New York 8, N. Y.

☐ THE HANDBOOK OF  
ADVANCED TIME-  
MOTION STUDY,  
\$3.00

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LATIN AMERICA,  
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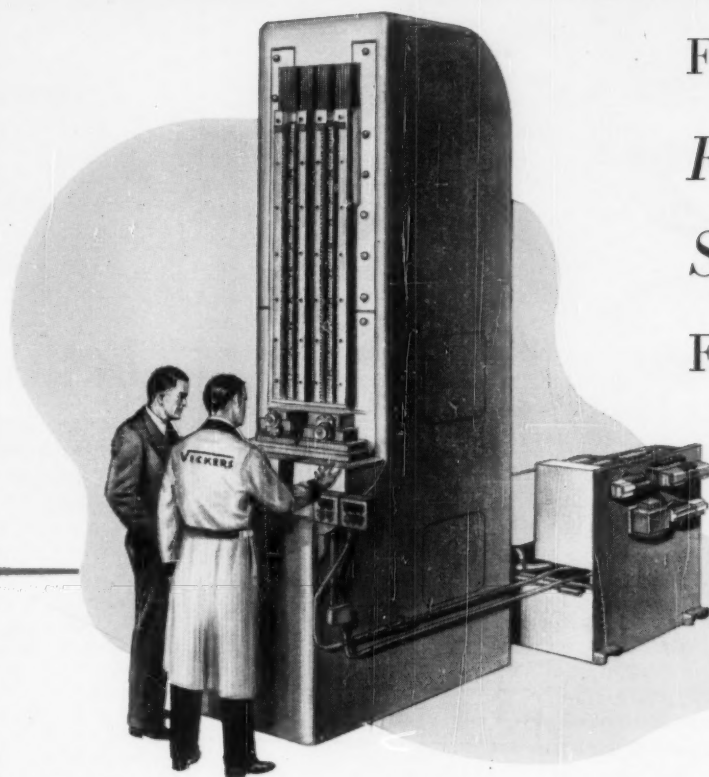
POSITION .....

COMPANY .....



ONE OF A SERIES

You Get Many Benefits  
by Specifying **VICKERS**® Hydraulics



Factory Trained  
*Field Service*  
*Specialists*  
From Coast to Coast

All machinery made by man requires servicing at times. Every manufacturer has two responsibilities: First, to build his equipment in a way that will require the least amount of servicing. Second, to see to it that servicing, when needed, is handled with speed, efficiency and low cost.

Vickers hydraulic equipment is built to keep service requirements to an irreducible minimum. But when service is required, it is handled by Field Service Specialists working out of Vickers offices from coast to coast. These men have been carefully trained in Vickers plants and are thoroughly competent. They know how to adjust and maintain any piece of Vickers equipment . . . any combination of components. They are also qualified to instruct customers' service organizations in improving their hy-

draulic maintenance practices. These men devote their full time to servicing Vickers products in customers' plants. They do their job well and at minimum expense.

This is only one of many benefits you receive when you specify Vickers Hydraulics.

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A Fine Xmas Gift  
To give or receive

... J. K. Lasser's  
"Tax Diary and  
Appointment Book"

No more estimates allowed.  
This beautifully bound gold stamped appointment calendar gives a complete checklist of business expense deductions with space for names, place, amount etc. You keep a daily record. Bound in tax saving Manual by J. K. Lasser. Welcome gift for any businessman. \$5.95 ea.



NOW... For Smaller  
Businesses — Easier  
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A complete bookkeeping set-up plus expert help and proof to substantiate tax deductions. Includes: General Business Records • 9 detachable Summary Forms to attach to tax return • Post card that brings 32-page 1954 Tax Fact Supplement • PLUS a 14-page tax saving Manual by J. K. Lasser. \$5.95 ea.



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J. K. Lasser's  
"Individual  
Income and  
Tax Record"

Helps you pay lowest correct tax with practical record-keeping forms — provides needed proof if necessary. Detachable tax return schedules for easy filing. Post card that brings 1954 Tax Fact Supplement plus filled-in sample forms. Plus a 10-page tax saving Manual by J. K. Lasser. \$5.95 ea.

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(Please Print)

Address.....

City.....Zone.....State.....

SAVE POSTAGE AND C.O.D. CHARGES

by enclosing payment with this coupon.

My Stationer's

Name.....

same period, had to be wearing safety shoes if a man or safe shoes if a woman, and had to be wearing any other safety equipment required for his job when the qualifying committee inspected him on the job.

Even more effective than publicizing names of winners, the kraft paper company discovered, was widely publicizing why a loser lost (but without using his name). Grounds for disqualification were about equally divided among the qualifying requirements.

Officials were so impressed by word-of-mouth publicity the safety slogans got—they became a form of greeting between employees—that it decided to use the checks to tell the community about itself.

Endorsement-area surprints will point out such facts as that most of Union Bag & Paper Corporation's raw materials come from Georgia's pine forests, that company has grown from a payroll of \$1 million for 600 employees to \$16 million for 5,000, that it makes 1,500 tons of paper and cardboard a day and ships 35 to 50 million bags a day.

The contest and campaign were developed by R. W. Gray, safety director; Kirk Sutlive, public relations

director, and S. C. McCormick, accountant, in consultation with Robert E. Hall, Jr., of the Todd Company of Rochester, N. Y., which makes Union Bag & Paper's checks.

## "Welcome back" greeting for returning strikers

When 200 employees of the Keller Tool Company, Grand Haven, Mich., returned to work after a ten-week strike a month ago, each was presented with a personalized greeting card, illustrated with an outstretched hand. It read:

"Welcome Back, ———. We're glad you are back to work. With your help we hope to soon have production up to a normal level again. Your new rate of pay is — an hour, as provided by the terms of the new contract. We are confident that the new contract will work to the benefit of all concerned. All of us can now look forward to the opportunities that lie ahead. So—Welcome Back. Keller Tool Company."

The strike was the first serious labor dispute in the company's 37-year history. With such astute internal public relations, it might be the last.

The operator performing the CD-21 job, which both parties agreed is correctly rated at 3rd degree was lining up a piece of work in a floating face plate, preparatory to grinding a reverse-taper hole. This is shown in Figure 3.



Figure 3.

The Arbitrator talked with all three operators and with their supervisors, in addition to watching the work being done. There is no doubt in his mind that the job in question is correctly rated at 2nd degree both in terms of the Manual definitions and in comparison with CD-21 and CR-03.

Helper (Production) - Screw Machine Parts (NSMP - 02)

The Union's request, in this case, was for an increase from 1st degree to 2nd degree in Rating and from 1st to 3rd degree in Responsibility for

## Arbitration catches up with old proverb

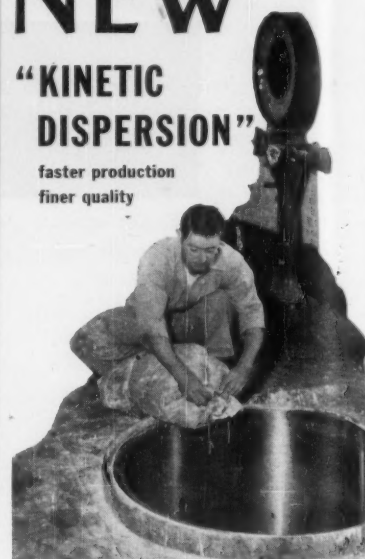
The legal-minded have seldom subscribed to the proverb that says one picture is worth 1,000 words, but one arbitrator has cast custom to the winds. Called upon to render some fine decisions on rates for similar jobs. Profes-

sor William W. Waite supplemented his verbal descriptions with pictures of the critical part of each operation, as above. His picture-decked award was made under administration of American Arbitration Association.

# NEW

## "KINETIC DISPERSION"

faster production  
finer quality



## A Better Method

in processes of mixing of solids and liquids, dispersing, grinding, homogenizing, ultra-fast dissolving, chemical reactions.

The new KADY MILL applies this principle of KINETIC dispersion... agglomerate masses, moving at high speed, are broken up by changing KINETIC energy into WORK done at a point of impact with such great effectiveness that this method offers a new idea of profit to industries that can benefit from improved quality of dispersion and a faster production rate.

Already it is arousing the enthusiasm of production people in paints, varnishes, enamels, lacquers, industrial finishes, paper coatings, plastics, prepared foods, starch solutions, textile inks, cellulose acetate, chemicals.

For a complete description of the theory and practice and list of successful users, write for "The Kady Mill", a 40-page illustrated booklet. You may arrange to have your own materials test-processed in a Kady Mill at the factory. Write to KINETIC DISPERSION CORPORATION, 95 Bedford Place, Buffalo 16, N. Y.

## The KADY MILL







#### THIS S&C METALCLAD SWITCHGEAR

is part of Whirlpool's distribution system. Electric service is brought in at 69 KV. Two transformer banks deliver power at 12.5 KV to this double-ended switching center. Four feeders supply load centers which serve various areas of the plant with 440-volt power. Two additional feeders are spares for future use. A tie switch in the center bay, normally open, permits all feeders to be supplied from one transformer only under emergency conditions.

## S&C METALCLAD SWITCHGEAR FITS THE JOB BETTER

...and it saves half the cost!



#### ROBERT L. PFEIL

is Secretary and Assistant Construction Superintendent of Koontz-Wagner. He says, "Our work is almost altogether connected with industrial plants and public buildings. Because of our long and valuable experience in this field, we prefer to do our own engineering, and give our customers full advantage of our experience and know-how. We thus can be sure that the installation is entirely adequate, and frequently we are able to make substantial savings, as we did at Whirlpool."

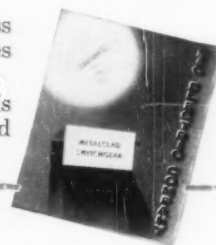
When Whirlpool Corporation recently acquired a plant in LaPorte, Ind., for the manufacture of aircraft parts, a new electric service had to be provided to meet the new requirements.

Koontz-Wagner Electric Co., Inc.—contractor-engineers of South Bend—were assigned to engineer and install the necessary equipment.

As part of the main substation, Koontz-Wagner selected S&C Metalclad Switchgear to provide fault protection and switching . . . because investigation showed it was not only adequate for every need, but that alternate equipment would have been larger and more cumbersome, required more ground area, a larger pad, and would have cost more to install and maintain.

With S&C Switchgear the cost was less than half; and now there are no batteries to maintain, no oil to change.

Information about S&C Switchgear is contained in this booklet . . . we would like to send you a copy.



S&C Electric Company  
4437 Ravenswood Ave., Chicago 40, Illinois

Please send me your new booklet on S&C Metalclad Switchgear. No obligation on my part, of course.

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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





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SOLID STEEL ...PIERCED ...AND STRETCHED

## SOLID STEEL

that keeps out intruders—yet lets in heat, light, sound and air

Here's the answer to a maintenance engineer's dream: rugged, easy-to-erect enclosures stronger than solid steel its own weight, yet open-meshed to allow full visibility and ventilation. What's the "wonder metal" that makes all this possible? Wheeling Expanded Metal! And it's all the more practical because the partitions, in standard panel sizes, install with screwdrivers and pliers.

Need grilles, bins, or walkways in your plant? Look into versatile Wheeling ExM, the metal of 1,001 uses. Write for full details.



**WHEELING CORRUGATING COMPANY**

WHEELING, WEST VIRGINIA

Atlanta	Boston	Buffalo	Chicago	Columbus	Detroit
Houston	Kansas City	Louisville	Minneapolis	New Orleans	St. Louis
New York	Philadelphia	Richmond			

## A NEW SCIENCE OF THINKING

Continued from page 45

1. Establishing better group co-operation among their members;

2. Evaluating more effectively the statements each was making to the group;

3. Controlling their individual emotionally charged ideas which could drag out the meeting, and slow their own brain work;

4. Acquiring an excellent concept of how to run a meeting of their own when they got back home.

The application of executive techniques to company problems, and the exercises in new habits of thinking coincided for this group because J. S. A. Bois, Ph.D., industrial psychologist, and ex-President of Canadian Psychological Assn., drives home the main themes of G.S. as a major portion of a program that he has spent over five years developing and experimenting with.

The morning the Marconi group discussed the Company B case study, the moderator plotted (diagramming is a G.S. technique) on the blackboard what the men were communicating to each other, until the whole situation at Company B, as they agreed to interpret it, was visually presented. Colored chalk was used—orange marks on the board indicated difficult or doubtful spots in the situation; red marks the rosy ones, and so on.

### How time is saved

As the session progressed, because the moderator himself was semantically orientated, he knew how to keep the men from losing too much time disagreeing over what to agree about.

And the men, looking at the blackboard-diagram "notes" emerging out of their discussions of Company B, found themselves avoiding (or trying to) the flat opinions and solo discussions that result in no more than an airing of opinions. They were picking out the key factors of their debate, leaving behind the et ceteras, and saving time.

In Bois' program, these thinking habits and the "traditional" executive approach, as practised by any of his work-shop groups, are eventually brought to bear, through careful coaching, on the actual problems within an individual's own work and company.

During a discussion, for instance,

on "operational" language (neutral terms in G.S. parlance), a group of executives from Henry Morgan & Company, Ltd., Montreal, worked their way spontaneously into thinking about the company's advertising program.

In 1948, Dr. Bois found a management willing to experiment with G.S. The firm employs about a thousand people, and results were sufficiently pleasing to it that Bois was asked to continue until he had covered all levels of management.

Since then he has put through his program around 335 executives from some fifteen firms of varying sizes. He says, "Our aim is to implant new methods of thinking, behaving, and communicating in the executive. We don't tell him what to do. Each individual absorbs the basic notions in his own way, practises them according to his own style, and adapts them to situations at his own discretion."

"The program applies only to people with previous experience in supervisory and management work; otherwise discussion would suffer." Also, he cautions, "If the executive is looking for a quick cure, or if he is loath to acknowledge tensions and work problems, we know from bitter experience that our program is not for him."

Dr. Bois adds that when busy executives return to their daily activities, having completed the course, they find it hard to find the time to integrate the new discipline with their previous habits. Taking time to practise sometimes seems like a slowing down of urgent work. Yet this follow-up is the main thing.

THE END



"I am J. Fairchild Purvis!"



### *The magpie instinct*

This trait is probably completely and thoroughly the most universal human characteristic.

"Collector's items" is a term which has spread from the art galleries and the book shops to include the 1953 office.

An office clean-up campaign conducted recently by The Mutual Life Insurance Company of New York at its home office showed that the business desk and file cabinet are away ahead of the woman's handbag when it comes to housing items of no value whatsoever.

Mutual life moved to a brand-new building on upper Broadway in New York City in 1950. Just three years later the clean-up week campaign revealed that desks and cabinets had a series of dry cleaning tickets, dating back to 1917, an old jug of cider mold, and a mildly mildewed can of snuff.

Running a close second were a lop-sided whisk broom and a man's hat which even a fisherman would consider disreputable.

Point of the campaign was to show that desks and files can become cluttered. The company was pleased that no unanswered letters were discovered. The correspondence program of the company requires that all letters be answered within three business days.

A comparable clean-up campaign was conducted recently by the United States Justice Department criminal division in Washington. An order to clean out desks and file cabinets brought forth 10,000 pieces of unanswered mail, a petition in the 1916 Tom Mooney case, and records of employees who hadn't worked for the department for 20 years.

Mutual Life is proud of its 1953 pile of trash.

## *Here and There in Business*

### WHAT'S NEW

#### AS OBSERVED BY THE EDITORS

However, an official of the company said: "... the shiny results will soon be marred by the gradual accumulation of original masterpieces for next year's house-cleaning."

#### *Hot or cold*

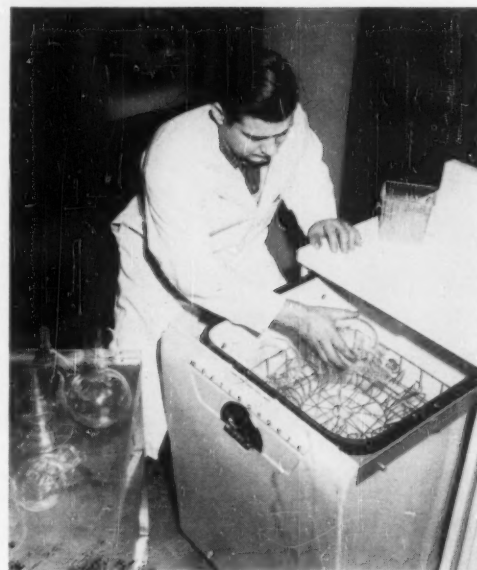
A new lubricant has been developed which is effective in the temperature range from 65° below zero to 125° above zero. It was developed by The Texas Company for use in military vehicles, which sometimes go from desert posts to areas where sub-zero temperatures prevail.

Previously it was necessary to relubricate the vehicle completely. It is said that the new grease has rust and corrosion protection qualities, and functions even when contaminated with water.

#### *Dish-washer, technical*

The scientist and the technician are now offered a device long enjoyed by many American housewives—namely, an automatic dish-washer.

While the new machine looks like the conven-



*Dish-washer especially designed for use in laboratories.*

tional kitchen appliance, its interior has specially designed racks to care for the test tubes, graduates, beakers, funnels, and other glassware found in the laboratory. In operation, nothing moves inside the washer except the water. The thin-walled glassware is held in position on the racks, while the water is swirled in and over each piece.

The new unit is known as the "Labwasher." It is being manufactured by Westinghouse Electric Corporation for the Chemical Rubber Company, Cleveland, Ohio, which designed the special racks.

Chemical Rubber claims that glass breakage will be reduced. In addition, the company states that thousands of man-hours will be saved by highly paid scientists. It is estimated that there are about 40,000 commercial laboratories in the country, in addition to those in medical and educational institutions.

#### *Farming electronically*

Electronics goes to the farm. A mobile unit has been developed by the Ford Tractor Division of the Ford Motor Company to test stresses and strains on farm equipment on the spot.

Previously such testing was made in labora-



*Employees examine some of the material found in files and desks during "clean-up week."*



**Now . . . an extremely flexible high-temperature tubing  
 . . . IRVINGTON Silicone Rubber-Coated Fiberglas\***

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With the introduction of Silicone Rubber-Coated Fiberglas Tubing, Irvington offers to the electrical industry a product that, like the resin-coated type, meets all NEMA Class "H" requirements. In addition, this new tubing has the advantage of extreme flexibility. Its white color is a plus wherever appearance is a factor.

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tories, and of course laboratories are stationary. Now, the research can be done as the farm equipment is operating in the soil where the plow or cultivator has to do its work. The soil can be Jersey clay, Texas sand, or Midwest loam.

The farmer of yesterday wouldn't know what a multitrack oscillograph or an optical recording oscillograph were. To-day the action of a plow is measured by these devices, as shown in the illustration. The tractor is pulling the plow, to which strain gages have been attached. Plow "behavior" goes by cable to the oscillographs in the mobile laboratory, which moves right along with the tractor.

The story is recorded on graph paper, and engineers get the facts of performance to aid them in considering improvements in design.

(Wonder what grandpa would think?—Ed.)

**Auto radio converter**

The trend from six-volt to twelve-volt automotive electrical systems has led to the development of two convertors to prevent the obsolescence of the smaller voltage two-way radio units.

The Communications and Electronics Division of Motorola, Chicago, Ill., now has available two

twelve-volt to six-volt convertors. One has a capacity from ten to 50 amperes, and the other from ten to 30 amperes.

Owners of fleets of automobiles and trucks with both six-volt and twelve-volt electrical systems will be able to continue using the six-volt units. This will permit standardization and interchangeability.

**High temperature tape**

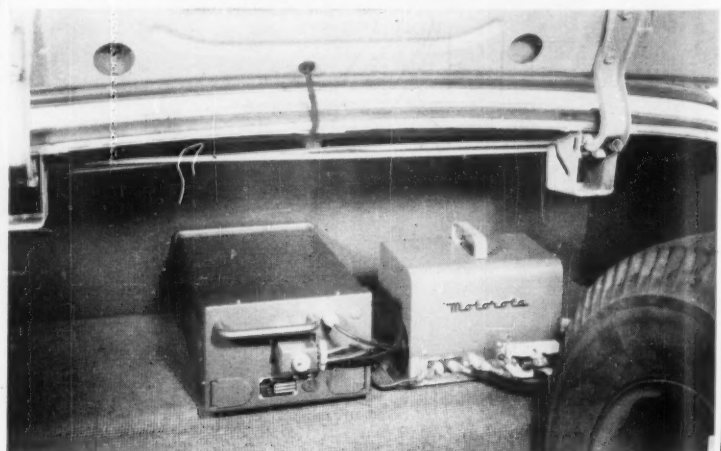
A new "Scotch" brand high temperature masking tape has been designed for use in ovens up to 325° fahrenheit.

With this tape high heat masking is possible on such treated metals as anodized aluminum, pickled steel, and dichromated magnesium. The market for this masking tape is said to be the metal finishing trades, including aircraft assembly, engine, and electronics manufacturers.

The tape comes in ¼ to 36-inch widths, according to its producer, the Minnesota Mining & Manufacturing Company, St. Paul, Minn.

**Domestic jets**

This method of releasing energy was used during the war to propel buzz bombs, and now it has been put to civilian use. Two products have recently been introduced to this country which operate on this



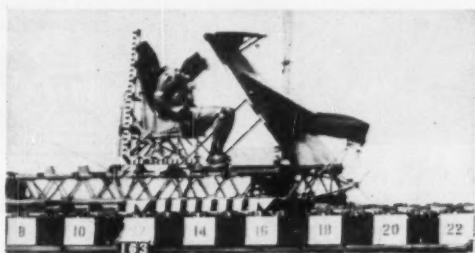




### ***Sir Isaac did it this way...***

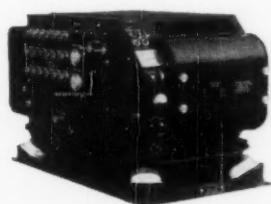
Deceleration, momentum and gravity intrigued Sir Isaac Newton in 1660, but he lacked today's scientific instrumentation and therefore had to carry out his experiments on a basis of guesswork.

### ***The Air Force does it this way...***



Deceleration forces are a major problem in high-speed flight. To study human resistance to high crash forces and the strength of aircraft components and safety equipment, the U. S. Air Force conducted 233 tests. Crash belts, seats, and even volunteer personnel were fitted with strain gages and propelled at high speeds on a rocket-powered sled, stopping with crash-impacts up to 45 times the force of gravity. Electric signals from the strain gages were telemetered to a Consolidated dynamic recording system where stress, strain and displacement data were all measured and recorded simultaneously, making clear, permanent records for future reference and study.

### ***You can profit by their experience this way...***



Progress and profit are closely tied to process control, product development and improvement. Thousands of industries as well as the military conduct performance evaluation through dynamic testing. Consolidated produces high-precision analog-data-processing instruments such as the Recording Oscillograph, left, to record static and dynamic data; analytical and control instruments of the mass spectrometer type for analysis, process monitoring and control; digital data-processing devices such as electronic converters and computers. Perhaps our long experience in the instrumentation field can help you improve your product or process, and thus increase your profit. We would like to discuss this possibility with you.

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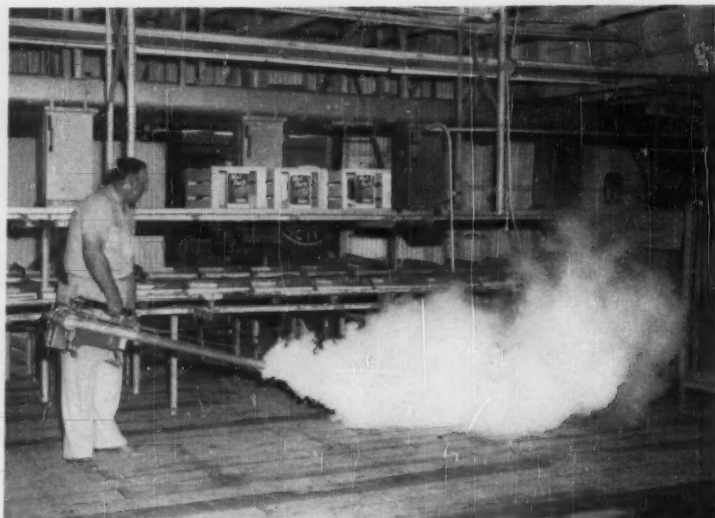
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The "Swingfog."

combustion method. However, instead of being machines of war, they are a gasoline engine preheater, and a portable apparatus that atomizes a pesticide or fumigant.

The engine heater is known as Swingheater. Its purpose is to prevent automobile engine wear and tear and damage because of cold starting in the Winter-time. The heater can also be used with a heat exchanger to warm bus and truck interiors, or for cabins, tents, and similar structures.

The fog-maker, known as "Swingfog," creates a dense, clinging fog fatal to insects or bacteria. It can be carried by shoulder strap and operated by one person.

These devices, stemming from the battlefield, now are being introduced to this country as peacetime aids by Devenco Incorporated, New York, N. Y.



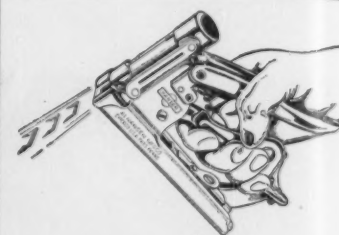
The "Swingheater."

## Bulky loads

Those are the type that are the specialty of a new fork truck with a capacity of 30,000 pounds. It is called the Traveloader.

It is side-loading, and handles such materials as lumber and steel stock in the area of a twelve-foot aisle.

Material is carried inboard on the



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CEDAR RAPIDS, IOWA

load deck. This allows the machine to travel at speeds up to 30 miles an hour, the manufacturer claims.

Hydraulically operated stabilizing jacks give added stability when the truck is being used for stacking or unstacking.

It is equipped with pneumatically tired dual wheels, both front and rear.

Several attachments are available, including crane arms, rams, and master pallets.

The manufacturer is Baker Industrial Truck Division, The Baker-Raulang Company, Cleveland, Ohio.

#### Reducing paper work

Photocopying equipment seems to be well on the way to becoming the "belle" of the modern office. Increasing popularity of this device is reported from many sources.

For instance, there were 34 photocopying machines on display at the recent Business Machines Exposition in New York City.

Chief claim to fame for this relatively new appliance is that it reduces the time caused by "paper work." Investors Diversified Services, Minneapolis, Minn., which services half a billion dollars in mortgages, was faced with a problem of making sufficient copies of mortgage transactions for its head office and its branch offices.

An Apeco Auto-Stat was installed in the mortgage department, so that required copies of documents could be made within the department. Savings were significant enough to warrant a study of further uses of photocopying equipment.

The Auto-Stat is now being used to copy checks, bookkeeping forms, and correspondence. The new business department uses one to reproduce applications when it is necessary to return a copy to the purchaser. It is also used to duplicate legal documents that are returned to shareholders in fund application transactions.

Another machine was placed in the report typing department, where more than 1,000 items a month are reproduced, with a saving of many hours of typing and checking.

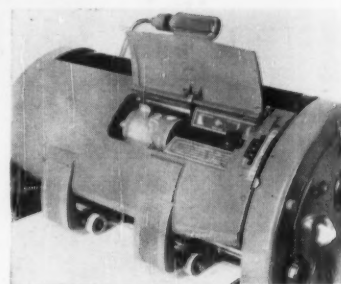
The "paper work study" showed that a photocopying machine could replace a courier service by supplying all departments with current account cards on more than 240,000 accounts for the investment fund



Apeco Auto-Stat



Develop Combi



Jetliner

affiliates. The machine reproduces extra lists of new accounts assigned daily. Many hours of manual copying are now saved without possibility of error.

The Apeco Auto-Stat is manufactured by the American Photocopy Equipment Company, Chicago, Ill.

Several new photocopying machines have recently made an appearance on the market. Among them is the Photorapid, which is a single-unit appliance, combining printer and developer. It is now being produced by Copy-Craft, Inc., New York, N.Y.

The Jetliner is being imported by Rex-Rotary Distributing Corporation, New York, N. Y. This is a double-sized duplicator which has an automatic metered inking sys-





for fast operation  
in congested areas and  
narrow aisles

# aisle saver<sup>®</sup>

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WRITE FOR BULLETIN 5210  
This informative, illustrated  
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**AISLE SAVER IS JOB ENGINEERED** to operate efficiently in congested areas; short, compact construction permits right angle stacking in extremely narrow aisles... a space-saving feature.

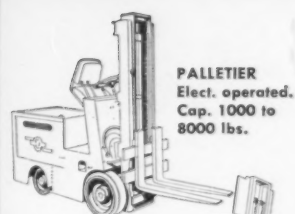
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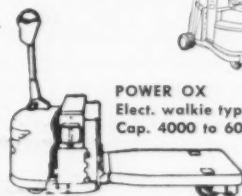
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Serving nutritious food, and serving it attractively is an important key to better employee morale. For happy faces and healthy appetites at lunch-time help keep workers "fit and able" to get the job done . . . faster! One sure aid is Lily\* Paper Service. These sturdy, smart-looking paper cups and containers assure swift — sanitary service. And regardless of type or size of feeding operation, Lily has the **complete** service to "fit the bill". Better yet, Lily performs one saving after another. Labor's less because service is faster, easier . . . and there's no washing, drying or stacking. Kitchen help can prepare many foods prior to eating periods — a pre-portioning advantage that saves valuable time! Too, you use just enough food to fill the size cup you choose — so there's no waste. And remember, there's never a safety factor to worry about when you use Lily Paper Service.



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All we've said here (and more) is being proven daily in thousands of feeding operations — of all sizes — all over the nation . . . including many of the country's leading industrial luncheon services. Whether you feed a hundred or ten thousand employees, Lily can do a job for YOU.

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tem, allowing easy exchange of colors.

Cormac Industries, Inc., New York, N. Y., have brought out a new office photocopier which is said to supply facsimiles in nineteen seconds.

Another import, which is manufactured in Stuttgart, is being marketed under the name Develop. It is distributed by Copease Company, New York, N. Y.

Peerless Photo Products, Inc., Shoreham, N. Y., have recently brought out Dri-Stat dry process photocopy equipment. Copies of original material are made in less than one minute.

#### Cutting shipping costs

Shipping costs of industrial acids and bulk chemicals can be reduced



from 40 to 50 per cent by use of a new non-shattering drum molded of Bakelite polyethylene. Capacities range from five to 55 gallons.

The drums have been designed to fit standard over-packs of steel, plywood, or fiber.

It is claimed that the 55-gallon drum holds as much as four thirteen and one-half glass carboys, but

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\*Fairfax individual and continuous towels used by W. A. Sheaffer Pen Company are serviced by Clean Towel Service of Burlington, Iowa



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**Fairfax Towels**

A PRODUCT OF WEST POINT MANUFACTURING CO. • WELLINGTON SEARS CO., SELLING AGENTS, 65 WORTH ST., NEW YORK 13

• World-famous Sheaffer Snorkel pens, pencils and desk sets are made in this new three and one-half million dollar plant of W. A. Sheaffer Pen Company at Fort Madison, Iowa.

The big, modern, efficient washrooms in this new plant are used by more than 1700 employees. At rush hours these big washrooms have heavy traffic... a prime consideration in choosing cotton towels was the ability of continuous cotton towel service to speed the flow of traffic. More important was the desire of Sheaffer management that their employees enjoy the greater comfort afforded by soft, absorbent cotton towels.

Whatever your towel problem... whether you operate a factory, institution or office... you can be sure that soft, gentle, absorbent cotton towels will do the best job in promoting employee morale, building customer good will, increasing tidiness in your washrooms and cleanliness among your employees.

For free booklet that tells how cotton towel service will save you money and increase sanitation and efficiency, write Fairfax, 65 Worth Street, New York 13, Dept. M.

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So when you lay your company's reputation on the line with Durez materials, you may be sure there are no better of their type. We've been specializing in the phenolics — most versatile of all plastics—for 32 years. We'll gladly work with your molder or your own staff in applying them profitably to your needs.

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**RESINS FOR INDUSTRY**  
—including a new fast curing type for shell molding in foundries



**PHENOLIC PLASTICS THAT FIT THE JOB**

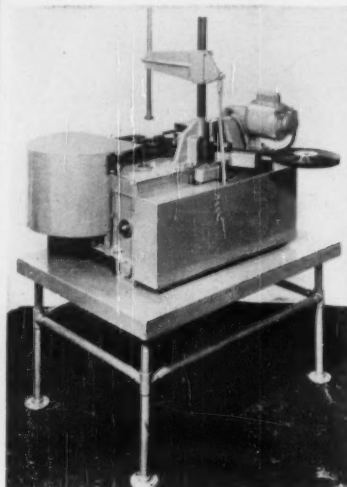
weighs only about one-fifth as much.

The illustration shows that it can be lifted with one finger. The drum merely flexes when hit with a sledge-hammer. The manufacturer is Delaware Barrel & Drum Company, Wilmington, Del.

### New can sealer

Cans are automatically sealed with pressure-sensitive tape by a new packaging machine.

The device, which is designed to



become part of conveyor systems, automatically starts the tape on the can to be sealed, wraps it at desired tension and overlap, and cuts the tape on completion of the seal. Its capacity is given as more than 900 cans a minute.

One operator controls the machine, which is a development of the E and R Company, Hamburg, N. Y.

### Improved pipe insulation

An improved fibered preformed pipe insulation has been announced by Owens-Corning Fiberglas Corporation, Toledo, Ohio.

It can resist more abuse, can be handled easier, and has increased thermal efficiency when compared with the product it replaces, it is stated.

This pipe insulation can be used in temperature zones ranging from subzero to 450° above zero.

The product is fire-safe and provides no sustenance for insects, mold growth, or vermin.

### "Talking" testing machine

A new universal testing machine that can be made to talk—at least in printed form—was introduced by



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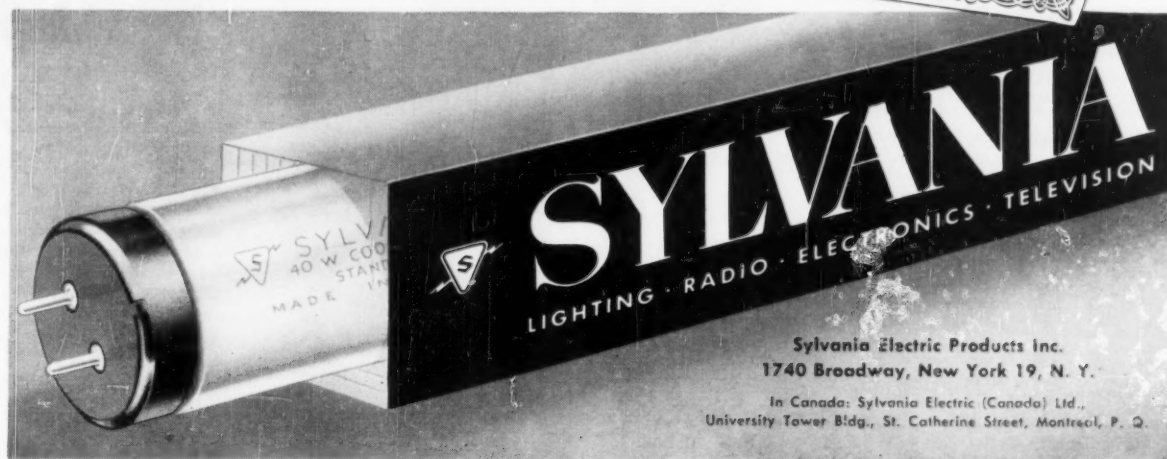


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Known as the "Baldwin-Emery  
SR-4 Universal Testing Machine,"  
it will test specimens or structural  
parts and components in tension,  
compression, torsion, and flexure up  
to a rated capacity of 50,000 pounds.

The basic unit can be hooked up  
to an automatic printer or to a com-  
puter and made to type out test re-  
sults automatically.

Electrical strain gages and re-  
corders can be attached to the ma-  
chine to record stress and shock,  
and it is also possible to measure  
creep and the effects of alternating  
loads by adding other units to the  
basic machine.

#### Roller top trailer

A new roller top, caster steer trail-  
er has been announced by Mercury  
Manufacturing Company, Chicago,  
Ill.

There are two roller conveyor  
sections 30 inches from the floor.  
Capacity is 3,000 pounds.

It was designed for use at the dis-  
charge points of conveyor and pallet  
loader lines. Material comes down



the conveyor and rides over the  
rollers. The cases are locked in  
place when brakes to the rollers are  
applied.

#### New pump available

A new pump has been announced  
by Vanton Pump Corporation, New  
York, N. Y. It is designed primar-  
ily for the pumping of foods and  
chemicals.

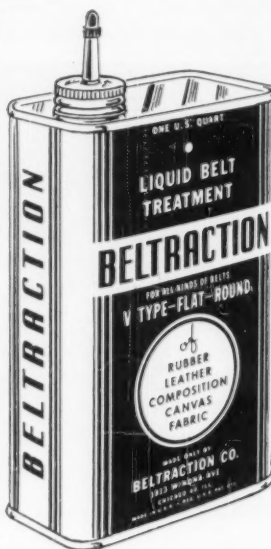
The fluid being pumped comes in  
contact only with the stainless steel  
body block and a corrosion resistant  
flexible liner made from one of a  
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Capacity of these pumps ranges  
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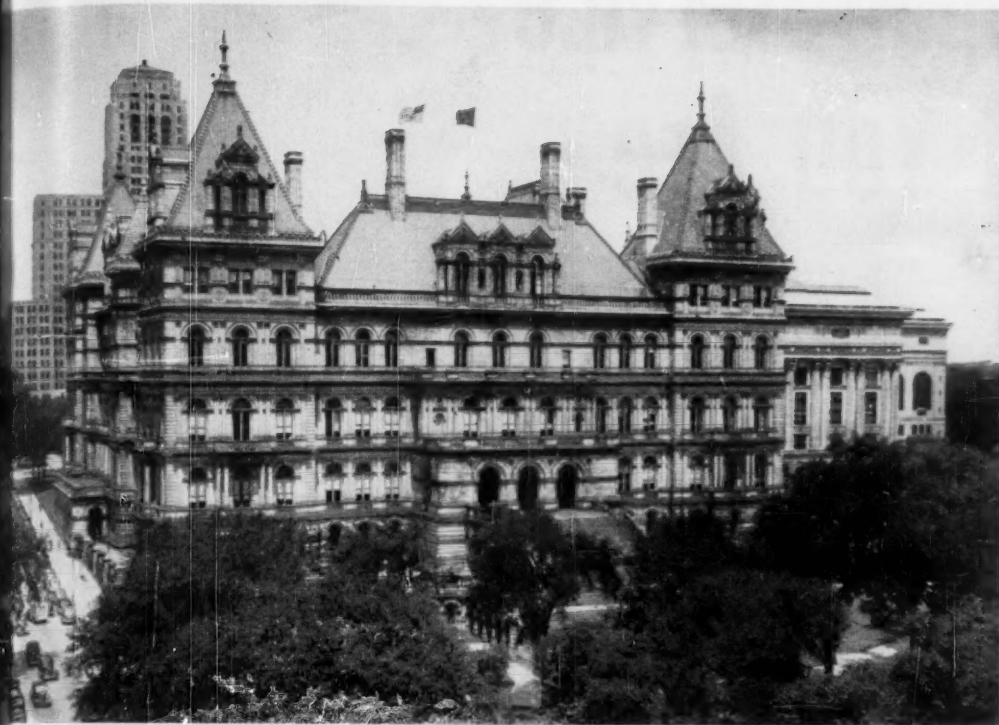
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**FOR ALL TYPES OF BELTS • V-TYPE, FLAT OR ROUND**



# Our Forty-eight States



RESEMBLING A FRENCH CHATEAU, THE STATE CAPITOL IN ALBANY STANDS AT THE HEAD OF STATE STREET HILL.—NYSPIX-COMMERCE PHOTOGRAPH.



ERRAZANO, SAILING UNDER THE FRENCH FLAG IN 1584, MUST HAVE BEEN LOOKING FOR MORE OBVIOUS SIGNS OF GOLD WHEN HE FIRST SIGHTED NEW YORK'S FINE HARBOR. WHAT HE DIDN'T SEE, HENRY HUDSON AND THE INDUSTRIOUS DUTCH DID, AND THE TERRITORY HAS MOVED STEADILY FORWARD EVER SINCE.

ADMITTED TO THE UNION ON JULY 26, 1788 AS THE ELEVENTH STATE, NEW YORK HAS BEEN PRE-EMINENT IN THE HISTORICAL, POLITICAL, COMMERCIAL, AND CULTURAL GROWTH OF THE UNITED STATES. IN 1784, AFTER A TOUR OF THE REGION, GEORGE WASHINGTON PROCLAIMED IT A "SEAT OF EMPIRE," WHENCE COMES THE DESIGNATION, "THE EMPIRE STATE." THE TITLE AND ITS MEANING REMAIN JUSTIFIED.

## NEW YORK

NEW YORK STATE has been endowed by nature with most of the resources needed to make a leading land area. From the fine deep-water harbor of New York City, through the rich, fertile valleys and strong water-power locations upstate, by way of the natural watercourses, the region is one that falls easily into a standing of leading importance commercially, industrially, and politically.

This State has played a role of great strength in the development of the United States. From its earliest Dutch Colonial days through the Revolutionary War, the War of 1812, and the Industrial Revolution, it has been in the forefront. New York has waged battles against oppression, reaction, bigotry, misinformation, and other social evils and obstacles that place themselves in the path of human progress.

It was the opening of the Barge Canal System in the 1820's that started the industrial growth of the State. Prior to this it had been largely agricultural, but the linking of East and West, North and South, provided greater scope for manufacturing and wider markets for the distribution of manufactured articles. Each decade since then has brought progress in some degree. With this



WORLD-WIDE PHOTOGRAPH

Thomas E. Dewey Governor

progress emerged large industrial centers of the Eastern half of the United States—Buffalo, Syracuse, Rochester, Schenectady, Utica, and other important cities.

The center of State Government was moved from New York City to Albany in 1797 and this important junction became the State Capital. Still a meeting place of highways, rivers, railroads, and air routes, Albany is now one of the more important industrial centers of the State.

That New York is politically important in national affairs is a well-known fact. The Governor's Mansion in Albany has housed many men

who have risen to national prominence. Four attained the high office of President—Martin Van Buren, Grover Cleveland, Theodore Roosevelt, and Franklin Delano Roosevelt. Still others have become nationally known through their appointments to high offices in the Federal Government.

New York's influence on the country's domestic policies, and to a certain extent, on the foreign policies, is largely due to its being the most populous state in the Union, and consequently having the largest amount of electoral votes. More than half this population is located in the area of New York City. The second largest city and the largest port in the world has been the financial and commercial center of the country almost since its beginning. Site of the first United States Capital, the city stands as the gateway to the New World and has always been a symbol of freedom to oppressed peoples.

With a firm foundation of natural and material wealth New York State stands as a cornerstone of the country. While its 49,576 square miles give it a rank of only 29th in the 48 States, New York holds the lead in many other ways, and can be correctly and justifiably designated, "The Empire State."

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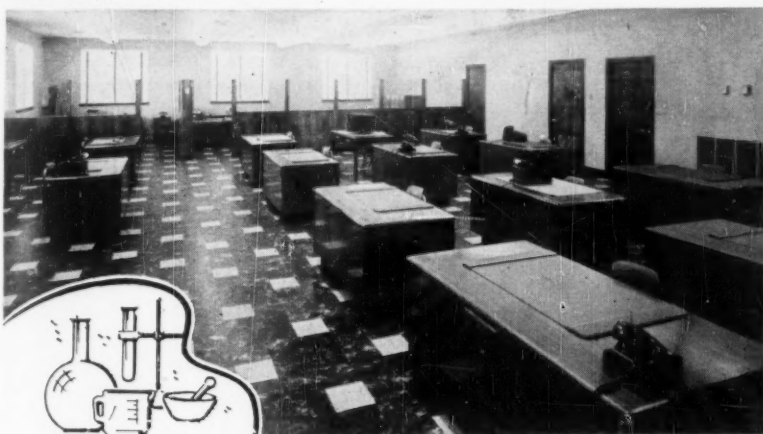




## QUIZ ANSWERS

Quiz starts on page 111

1. a) Radio detection and ranging.  
b) Sound navigation and ranging.  
c) Long range navigation.
2. a) A paper-making machine.  
b) A wedge or liner used to make a piece fit as an emergency repair. c) Instrument used in mechanical drawing.
3. a) Malleable iron is cast iron made less brittle by long heat treatment and low carbon content. Ductile iron is made less brittle by treatment with magnesium or one of the rare earths.  
b) Precision casting involves use of wax patterns and plaster molds. Die casting involves use of closed metal molds.
4. a)—3; b)—5; c)—1; d)—6; e)—2; f)—4.
5. a) Mill; b) bloom; c) bolt; d) journal.
6. a) Contains no silver. It's a copper-nickel-zinc alloy.  
b) By FTC order "rayon" should not be applied to acetate fibers. "Viscose Rayon" is correct.  
c) Contains a small amount of tin and is properly a bronze.
7. a) Freezing or melting point of the lowest-melting mixture of two substances. b) Magnetic transformation point. c) Volume of sales necessary to cover operating costs.
8. You're wrong if you listed Diesel, but ampere, henry, ohm, watt, joule, angstrom are correct.
9. a) Fell b) Rose c) Fell d) Rose.
10. a) A mixture of nitric and hydrochloric acids. b) An old name for hydrochloric acid. c) The common term for sodium hydroxide.
11. Orlon, Dictaphone, and Deep-freeze are trade names capitalized by their owners.
12. a) Brittle at elevated temperatures. b) Lab where radioactive materials are handled. c) Energized electrical wiring that is not grounded.
13. a) came—cam; b) lath—lathe; c) filet—fillet; d) cream—ream.
14. a)—5; b)—8; c)—7; d)—3; e)—9; f)—1; g)—4; h)—10; i)—2; j)—6.



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Kansas City, Kan.

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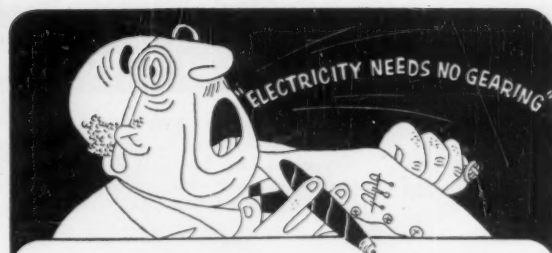
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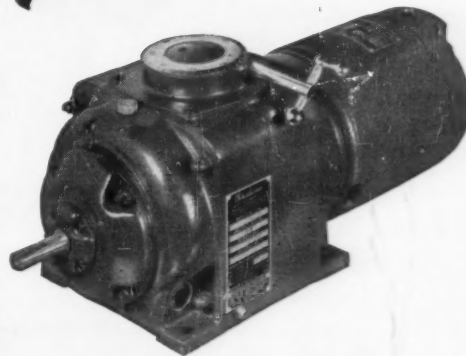


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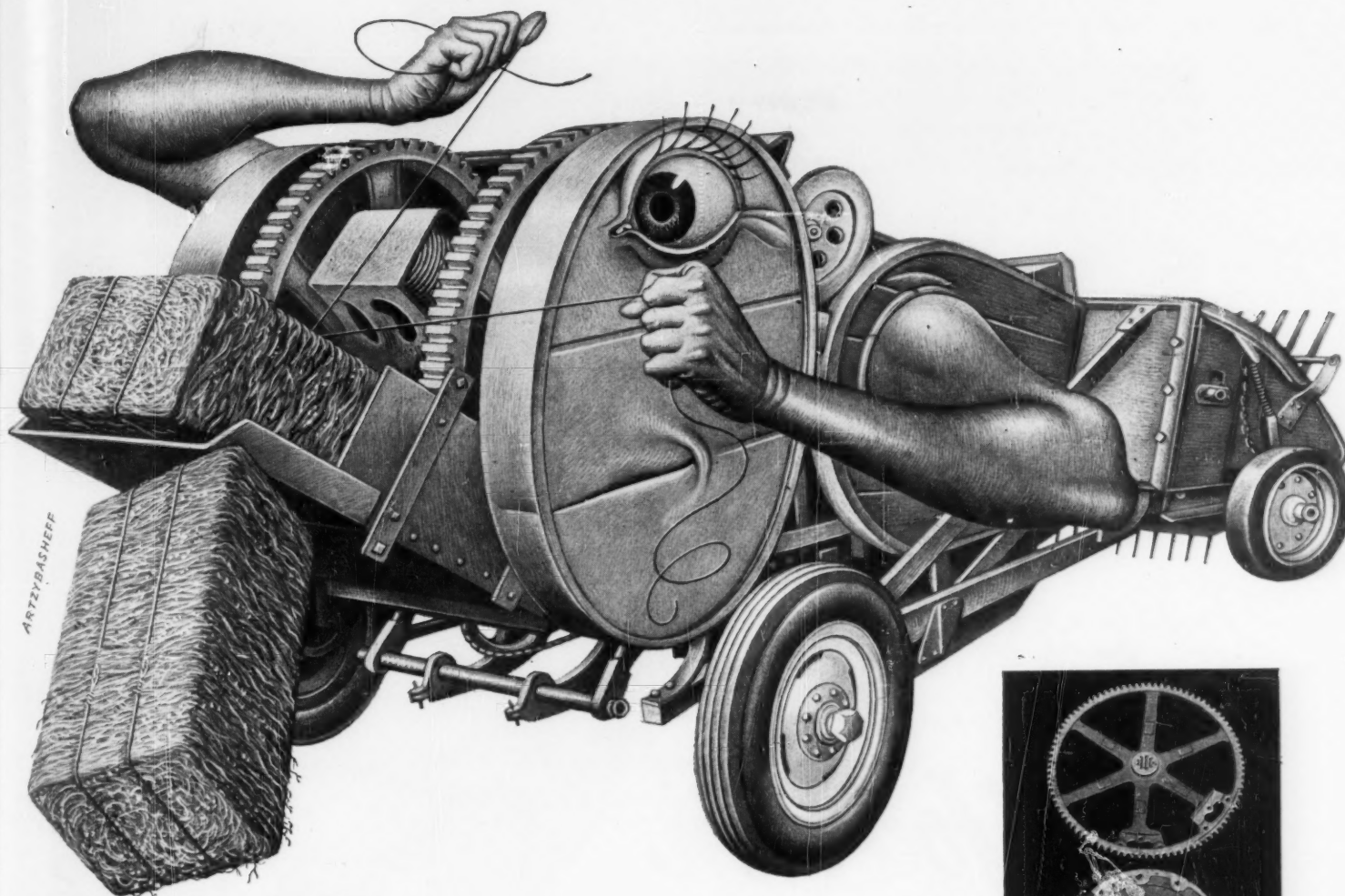
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## Strong "wrists" for America's new hay balers

Whisking through fields of hay...picking up and handling an almost incredible 2,500 bales per day...this man-saving, time-saving, money-saving NEW IDEA hay baler needs mighty tough gears to keep its tying mechanism on the job. To be certain these steel "wrists" have maximum strength and durability...NEW IDEA looks to Lycoming.

Do you need a precision part...volume production of a metal product...a dependable air-cooled engine...or development of "just an idea" in the rough or blueprint stage? Then remember—many of America's industrial and military leaders credit Lycoming with solving their most complex metal-working problems. Whatever your problem...look to Lycoming!

More than 6,000 machine tools, a wealth of creative engineering ability, and 2½ million square feet of floor space stand ready to serve your needs when you look to Lycoming.

AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

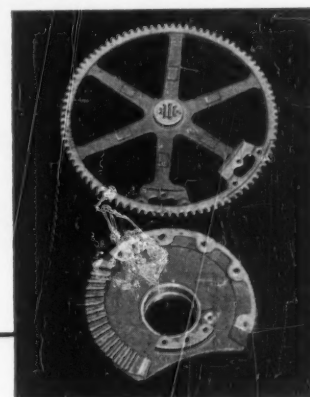
FOR RESEARCH • FOR PRECISION PRODUCTION

LOOK TO **LYCOMING**

Lycoming-Spencer Division, Williamsport, Pa.



Bridgeport-Lycoming Division, Stratford, Conn.



For sturdy, unfailing  
spur and bevel gears—  
"wrists" that drive  
the tying mechanism  
of its "one-man"  
hay baler—NEW IDEA  
looks to Lycoming  
for precision  
production.



For a more complete story on Lycoming's varied abilities and facilities, write—on your company letterhead—for the illustrated booklet, "Let's Look at Lycoming."



**at the point of sale!**

[illegible]

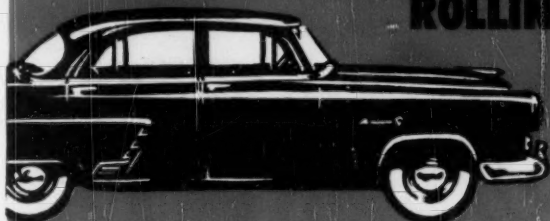
C, Indicates rating changed since preceding edition of Reference Book; 5331, Industrial Classification number for variety stores; Girard Co., Inc., name generally used in buying; Vs, abbreviation for "variety store"; 7, year started (1947); E 2½, rating (estimated financial strength, \$20,000 to \$35,000; composite credit appraisal, "good")

OFFICES IN PRINCIPAL CITIES OF UNITED STATES AND CANADA



# Here's How You Can Save Over \$1,000 Per Car, Per Year!

## WITH ROLLINS FLEET LEASING SERVICE



Rollins Fleet Leasing was formed to offer tremendous savings to companies now operating under company-owned or salesman-owned plans. Our company provides all automobiles, trucks and airplanes on an extremely economical rental, which benefits clients in many ways.

When you lease cars, trucks or airplanes these advantages are yours:

- NO CAPITAL INVESTED
- 100% TAX DEDUCTIBLE
- NEW CARS YEARLY
- UNLIMITED MILEAGE
- BETTER EMPLOYEE RELATIONS
- YOU SAVE THOUSANDS OF DOLLARS

Make your own comparisons after checking over this actual record of 45 salesman-owned cars.

### COMPARISON SHEET

Based On Forty-five Salesman-owned Cars

Salesman-Owned Plan 1 automobile 30,000 average annual mileage \$2,400 per year (8¢ per mile)	Rollins Fleet Leasing Plan 1 new automobile —30,000 average annual mileage \$822 rental per year (\$68.50 per mo.)
	**(\$600 gas and oil allowance at 2¢ per mile; it has been found that on a rental lease plan salesmen average 25% less mileage, consequently.)
	\$450 annual gas and oil allowance
<hr/> \$2,400 per car per year— \$108,000 annually	<hr/> \$1,272 per car per year— \$57,240 annually
Total Saving \$50,760 Annually on 45 Cars	

YEARLY LEASE: FORDS, CHEVROLETS OR PLYMOUTHS

Compare these rentals to your present operating costs.

100 or more units . . . . .	only \$50.32 per month
This Special Rollins Plan is Based on your Amortization Scale. You pay rental at the same rate that the car, truck or airplane depreciates.	
25 or more units . . . . .	\$68.50 per month
14-24 units . . . . .	70.00 per month
6-13 units . . . . .	73.00 per month
1-5 units . . . . .	75.00 per month

Special arrangements on EXECUTIVES' CARS. Savings on LEASED TRUCKS and AIRPLANES are equally great. For all the facts and figures, write for complete information to:

"Troubles Cease When You Lease"

## ROLLINS FLEET LEASING

Rehoboth, Delaware

Rollins Fleet Leasing, Dept. DR-11  
Rehoboth, Del.

Gentlemen:

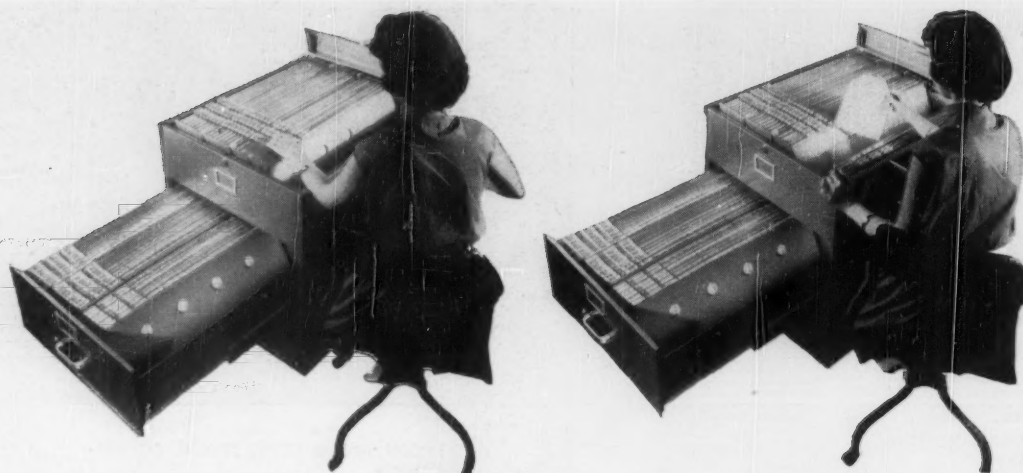
I would like to know more about your fleet leasing service. Please send me further details and your free transportation survey. We operate. (please signify number)

\_\_\_\_\_ cars \_\_\_\_\_ make \_\_\_\_\_ year  
\_\_\_\_\_ trucks \_\_\_\_\_ airplanes

Please print (Name) \_\_\_\_\_

(Company) \_\_\_\_\_

(Address) \_\_\_\_\_



## COST RECORDS THAT ARE NEWS NOT HISTORY

**System adaptable to any and all Cost Records. Faster posting and "look-up" provides up-to-date data with less personnel, time and space.**

On the face of it, any record-keeping method which could meet the needs of the many different cost accounting systems now in use would seem like a Utopian goal. A general characteristic of Cost Departments is the continuous strain placed upon them, due to demands for current, accurate cost data for operational purposes. Cited below are only a few of the instances where VISIrecord has been applied to cost records and, in every case, relieved the strain and received the highest praise. Some of the organizations now using VISIrecord in cost-record-keeping, are Ford Motor Company, York Corporation, U. S. Rubber Company, Bell Aircraft Company, Schlage Lock Company, and E. I. Du Pont de Nemours & Company, Inc.

Unlike any other equipment on the market today, VISIrecord combines complete visibility with compactness, flexibility of card design, ease of handling, simplified posting, and reduced card manipulation. This visible vertical principle provides for instant visibility of every card, and makes it possible to have thousands of records available to one operator in a sitting position, with instant accessibility to any card or group of cards, for easy removal, posting, and refiling. Here are just a few of

the many applications of VISIrecord existing today for cost records.

### COST OF SALES

In keeping cost of sales records one user finds that, because of the speed and ease of selecting and replacing ledger cards, *postings average 225 to 250 per hour and up*. On this record, cost of sales is computed for each sale and quantities sold are accumulated. Frequent reference to the ledger is required for posting sales to date and checking gross profits and their variations. Part numbers visibly displayed on the visible margins of VISIrecord cards permit extremely fast reference. Postings are all done at the record desk.

### PRODUCTION COST

Compared to the system previously used by one company, *reference and posting with VISIrecord is now 38% faster and 250 or more postings per hour are made*. In this application, labor, material and overhead costs are posted for each production lot. The record is extremely active as average costs are calculated monthly and frequent reference is made to the card for posting and checking variations of total cost and its factors.

### MATERIAL COST

The user reports *a savings of 50% over their previous system in selection, posting and refiling cards, and 100% faster refer-*

*ence to finished postings*. The purchase value of the material is posted to the card from each vendor's invoice. Quantity to date and value to date are accumulated and an average unit cost is computed monthly. The record requires frequent postings for computing average costs and frequent look-ups for checking variations on material costs. The speed of look-ups, the ease of posting, and assured accuracy of returning the record to its proper place because of an automatic "card-out" control feature, enable VISIrecord to pay for itself many times over.

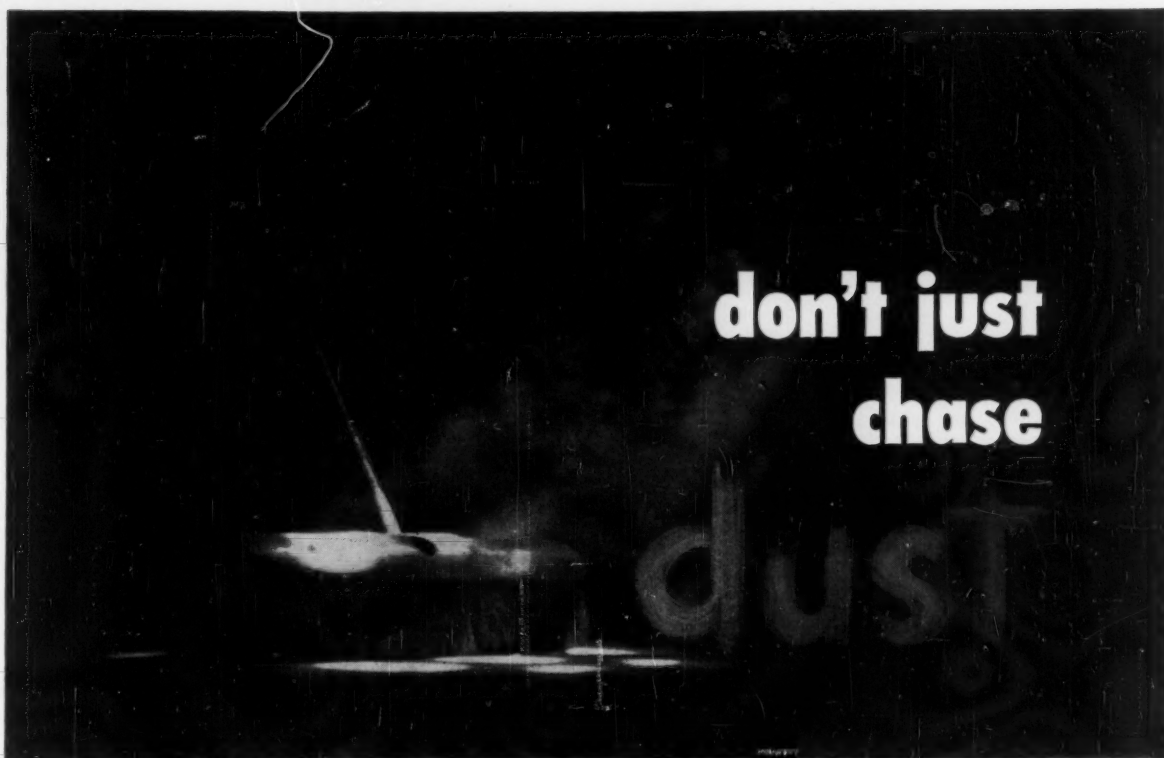
### COUNTLESS ADVANTAGES

Aside from the time and work saved with VISIrecord, users report that normal position posting and more efficient work area arrangement also reduce fatigue and clerical errors. Another important economy is in the space saved, because large volumes of records can be housed in small floor space areas.

VISIrecord forms are unlimited in size and visibilities, and systems using two, three, or more cards can be employed without sacrificing posting speed. For full details of cost-record-keeping applications now existing in plants throughout industry, and for information regarding application to your specific problem, write VISIrecord, Inc., Dept. D6, Copiague, Long Island, N.Y. or in Canada: VISIrecord, Inc., 266 King Street West, Toronto 1, Ontario.

—ADVERTISEMENT





**don't just  
chase**

**... eliminate dust with WESTONE!**



Dramatic proof of ANTISEPTIC WESTONE'S effectiveness. The hand at left was rubbed across an ordinary untreated section of floor. The hand at right was rubbed over a section which had been treated with dust-controlling ANTISEPTIC WESTONE.

Sweeping only rearranges dust. As a matter of fact, sweeping and floor traffic are the main dust spreaders—not open doors and windows as you might think. And dust is damaging. It spreads many harmful disease bacteria that often cause absenteeism. It affects precision apparatus and delicate finished products. Makes store merchandise, office and institutional floors unsightly.

**ANTISEPTIC WESTONE CONTROLS DUST.** Loosens and picks it up from floors, bins, shelves, furniture. Seals floor surfaces. Improves their appearance. Holds down subsequent dust so traffic can't raise it. Its antiseptic properties inhibit growth of bacteria.

**ANTISEPTIC WESTONE** is economical. It works as fast as a man can walk. One man can do the work of three in maintaining floors. And it goes a long way. One gallon covers 4,000 square feet. Interested? Check the coupon.



42-16 West Street, Long Island City 1, N. Y.

**WANT DETAILS?**

*Tear out this coupon and  
mail with your letterhead*

Dept. 1

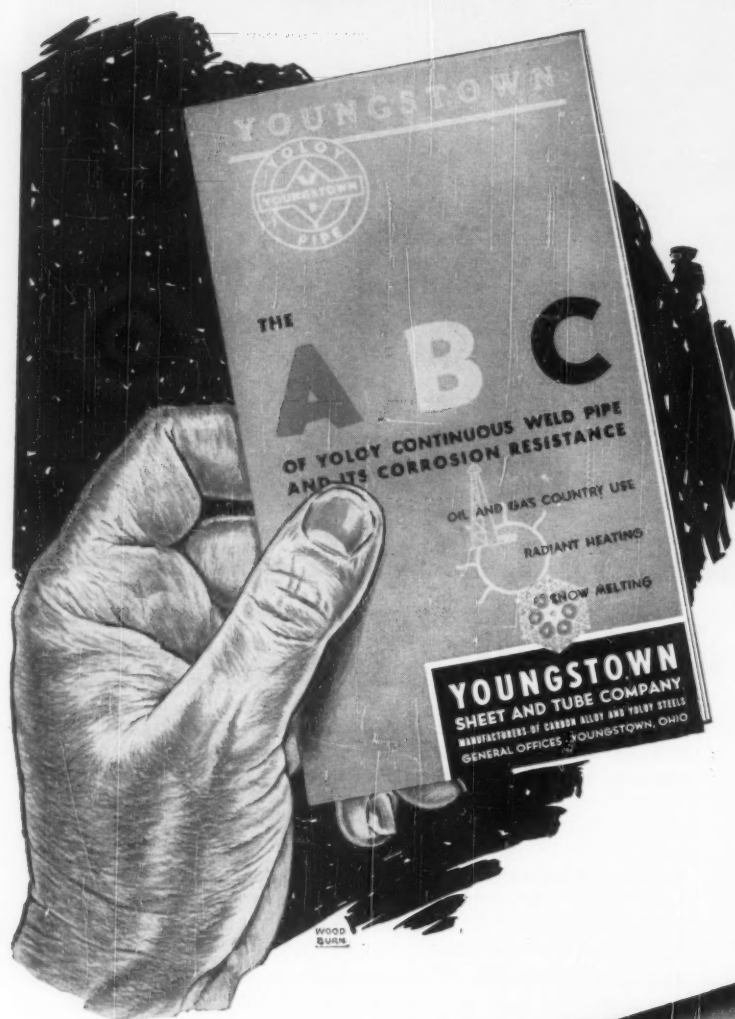
I'm interested in:

☐ A FREE leaflet on  
WESTONE.

☐ A talk with a West expert about my special floor problems. No sales pitch. No obligation. Just discussion and a demonstration if I want it.



**This DATA may solve YOUR piping problem**



● Here is the up-to-date story of Yolo Continuous Weld Pipe—a remarkable low alloy steel whose nickel-copper content gives it unique ability to withstand corrosion, abrasion and shock. These outstanding advantages combined with high strength, ductility and weldability make Yolo Pipe an excellent selection.

Proved by 18 years of satisfactory performance, Yolo is highly recommended by users in such service as radiant heating, snow melting, gas line gathering, brine lines and other industrial piping.

This new folder presents the facts and figures on Yolo's physical and chemical properties, with data on sizes now available and other information you'll need to select Yolo Continuous Weld Pipe to meet your special requirements. Write for a copy today.



**THE YOUNGSTOWN SHEET AND TUBE COMPANY**

General Offices — Youngstown 1, Ohio

Manufacturers of Carbon, Alloy and Yolo Steel

Export Office - 500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - WIRE - PIPE AND  
TUBULAR PRODUCTS - CONDUIT - RODS - SHEETS - PLATES BARS - RAILROAD TRACK SPIKES.



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## BUSINESS IN MOTION

---

### *To our Colleagues in American Business ...*

Revere, like other companies, prefers to avoid rush orders, because they tend to upset orderly scheduling of production and shipment. However, we are not bound by system, and will do everything we can to help when a customer faces a genuine emergency. Sometimes, of course, in spite of the best will in the world, we encounter conditions beyond our control. A metal shortage is one example. But when there is an overwhelming need for speed sometimes we can meet it.

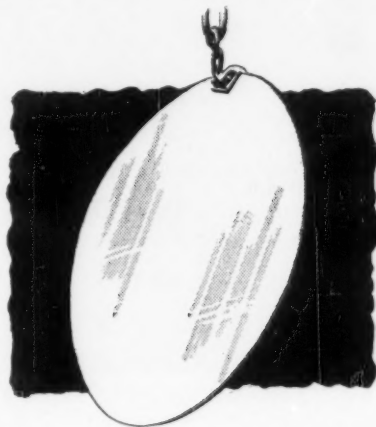
Let us cite a recent case. An important customer on the West Coast had spoiled two circular tube sheets while drilling them. This message was relayed by telephone to our New Bedford mill where we produce these sheets. How soon could we replace them? They were for an important government project. So urgent was the need that the customer offered to charter a plane to fly them to California as soon as they were ready.

A quick check showed that we could make duplicate sheets much more quickly than usual. The specified alloy was in stock, partially processed, so that casting time was eliminated, as well as some of the rolling. It was rolled down to the required gauge,  $1\frac{1}{8}$  inch thick, leveled, and cut into two circles, each 98 inches in diameter.

Meanwhile, the Traffic Department worked on the rather complicated problem of determining the fastest, most direct, yet least expensive way to get the circles to the Coast. Because of the weight and the

time already saved, shipping by plane entailed a cost that didn't seem justified. Traffic reported that the best solution was to ship by "direct car," which guaranteed no extra handling or trans-shipping en route. This was agreed to by the customer, and four days after he called us, the circles were thus shipped. They arrived eleven days later, in time to meet the deadline.

Was the extra effort required to rush through 5,000 pounds of tube sheets justified? We are sure it was.



Two days after the circles arrived we received a letter from the customer, in which he said: "The promptness with which your company undertook the problem of supplying the two sheets to replace those we had spoiled has been appreciated by all of us. . . . It is most heartening to work with persons who have a real sense of responsibility and concern over their customers' emergency requirements. Your company's performance in this instance left

nothing to be desired and we want you to know that it meant a great deal to all of us."

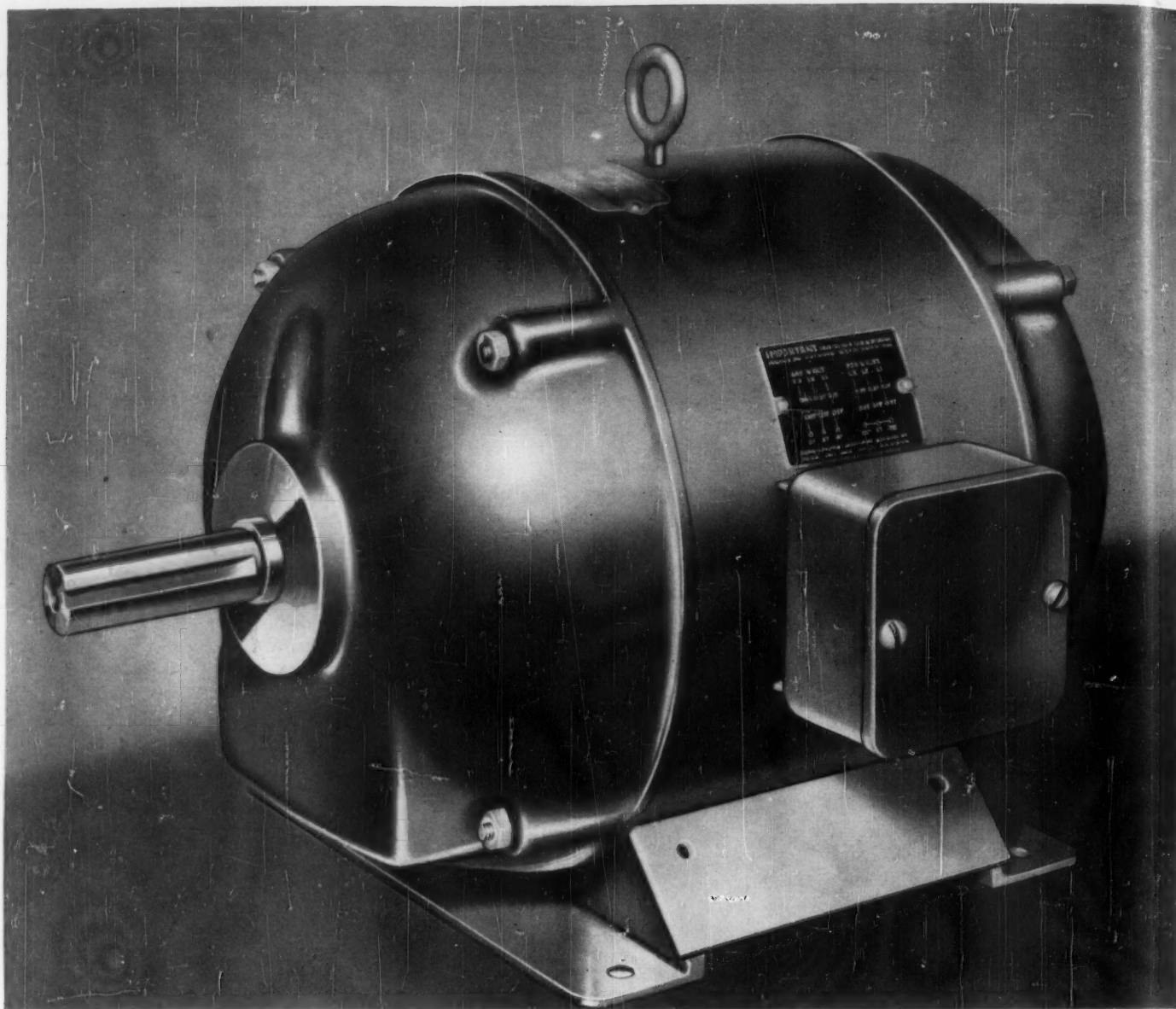
As we have remarked, we do not relish rushes any more than anybody else, but when there is a situation of real gravity, we will do our best to cope with it. Other suppliers in all industries, we have observed, follow much the same policy, so we suggest that when a genuine emergency arises, tell your suppliers the exact nature of it and ask them what they can do for you. They may be able to find a way to help you, as Revere did in the case just cited.

### REVERE COPPER AND BRASS INCORPORATED

*Founded by Paul Revere in 1801*

Executive Offices: 230 Park Avenue, New York 17, N.Y.

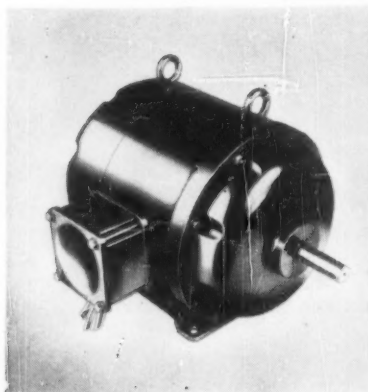
SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS



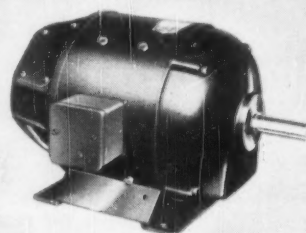
R&M "All-Weather" polyphase motors, 1 to 125 h.p.

1 to 125 h.p. . . . **R&M** has the motor you need!

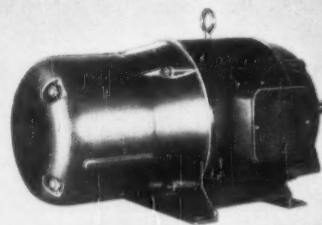
Explosion-Proof Totally-  
Enclosed Fan-Cooled, and  
Chemical Plant Motors,  
1 to 40 h.p.



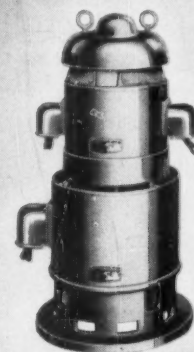
Direct Current  
1 to 7½ h.p.



Capacitor Single  
Phase, 1 to 7½ h.p.



Frequency  
Converters,  
2½ to 15 K.W.





# Tests Like This Show The Stamina of R & M "All-Weather"\* Motors!

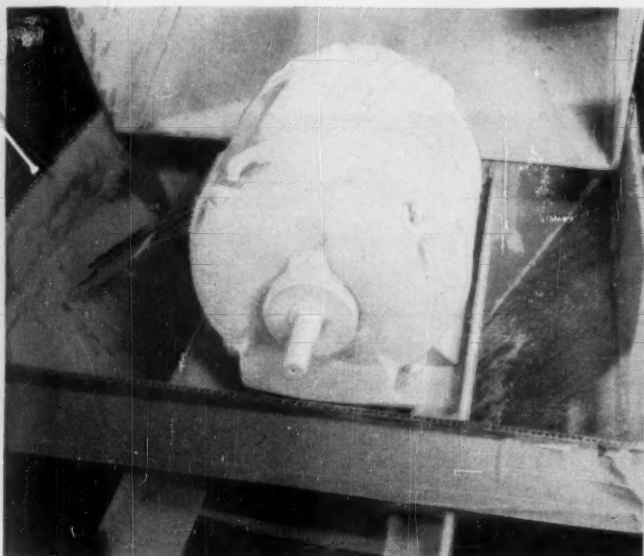
The standard R & M "All-Weather" open motor shown below was placed in a specially built test chamber in which it was blasted with highly abrasive 200-mesh powdered quartz.

After 2,860 hours continuous operation, it was torn down for examination. In spite of the tremendous amount of quartz deposited by air circulating through the motor, this is what was found: insulation showed no damage; effective thru-ventilation had kept all air-passages clear and unblocked; grease in the fully-

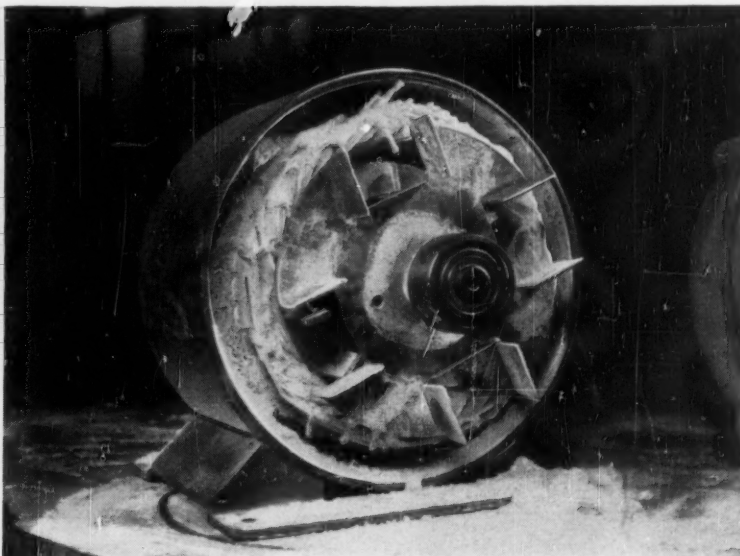
sealed pre-lubricated ball bearings was not contaminated—effective bearing seals had kept grease in, abrasive out.

After 8,000 hours in this "snow storm" of quartz the motor is still going strong, even though this accelerated test is subjecting it to treatment that would *never be encountered* in normal applications.

This is the kind of stamina you can expect with R & M Motors working for you . . . this is the performance for which R & M "All-Weather" Motors are famous!



This R & M "open" type motor has operated 8066 hours while being blasted with highly abrasive powdered quartz.



Large deposits of quartz were found throughout the motor, yet insulation is sound, bearings are clean.

## R & M MAKES THEM ALL!

Explosion-Proof; Totally-Enclosed; Single Phase; Direct Current; Motor Generators; Frequency Converters; Chemical Plant Motors; Close-Coupled Pump Motors; Jet Pump Motors; Motor Parts.

*If it's an R & M,  
it's the Right Motor!*

\*"All-Weather" is the trademark of Robbins & Myers, Inc.



# ROBBINS & MYERS, INC.

SPRINGFIELD 99, OHIO • BRANTFORD, ONTARIO



Fractional & Integral h.p. Motors & Generators



Electric Fans



Electric & Hand Hoists & Cranes



Moyno Pumps



Propeller Industrial Ventilating Equipment

# 11 ways you save with a G-E switcher

Whatever your industry, whatever your application, when you invest in a General Electric diesel-electric industrial locomotive, these 11 points can save you time and money:

1. only one man needed to operate
2. fuel costs reduced—one gallon of fuel oil does the job of 100 lb. of coal
3. lower maintenance costs, due to absence of boiler, firebox and heavy reciprocating parts
4. no need for firecleaning, ash handling, watering or watching
5. track and bridge maintenance costs reduced
6. seven standard sizes save you money on initial costs
7. less time for fueling and oiling
8. longer intervals between overhauls; only periodic inspection needed
9. time out for maintenance cut by as much as 66 per cent

10. available for work up to better than 90 per cent of the time
11. switching time speeded by fast, responsive control

To see how G-E locomotives can speed your switching schedule, while returning up to 30 per cent on your investment, write Section 120-64, for "Switch to Diesel-Electrics and Save" (GEA-4909B), a fact-filled booklet of operating results and case histories. General Electric Co., Schenectady 5, N. Y.

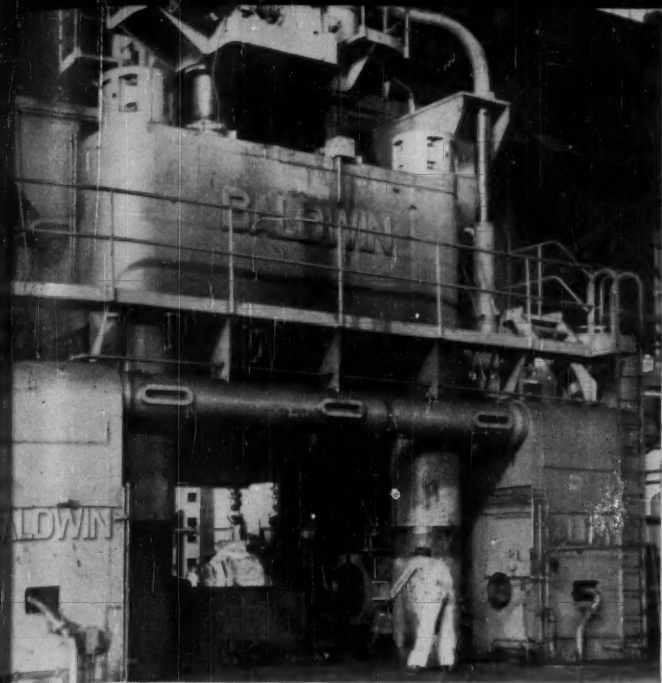
120-64

*You can put your confidence in—*

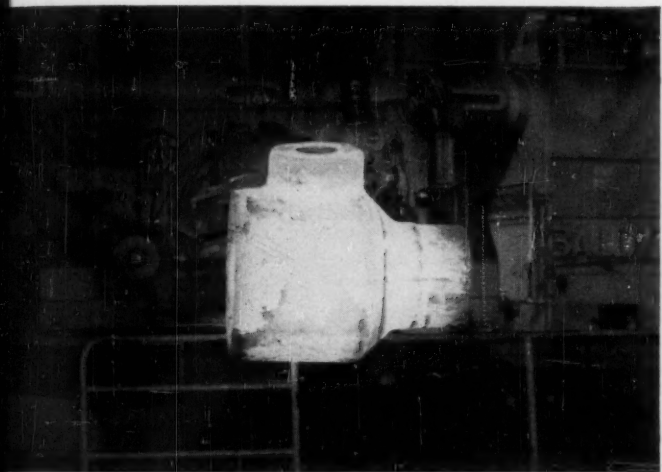
**GENERAL  ELECTRIC**



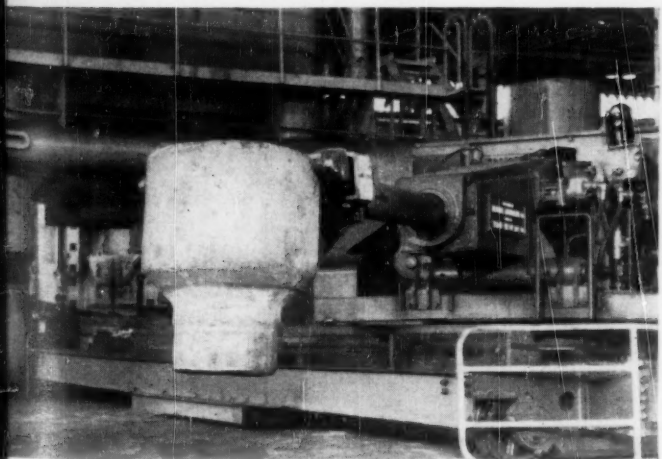




The horizontal split die has just opened after forging a throttle valve body.



The throttle valve body, having been pierced by the two side acting rams and the down acting ram, is removed from the die set.



The manipulator is placing the 3,590 pound forging to one side for further processing.

# SAVING MONEY BY

# Forging

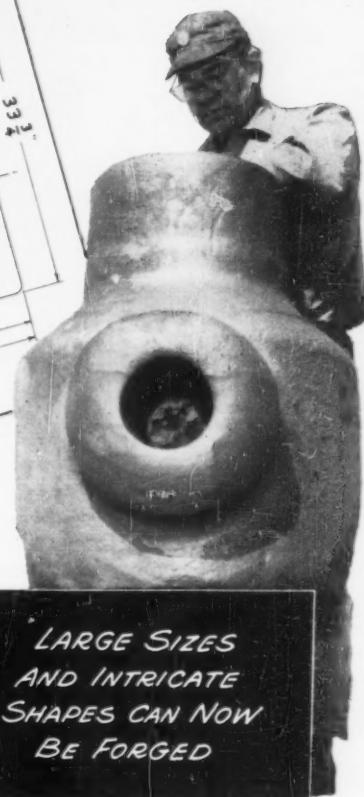
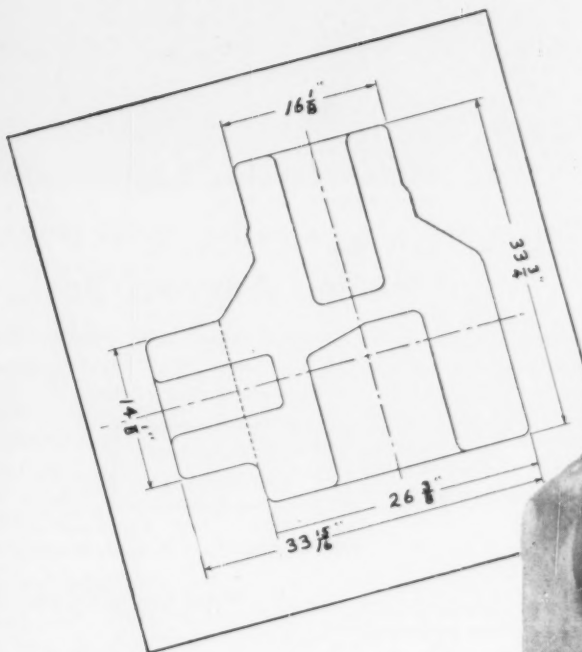
## A 3590 POUND THROTTLE VALVE BODY

A large size and intricate shape has been forged at Cameron. The result—homogeneous shapes, controlled grain flow and less machining time. Truly a new era in steel forging.

For further information write

**FORGE AND ORDNANCE  
DIVISION**

**Cameron**  
IRON WORKS, INC.  
HOUSTON, TEXAS



LARGE SIZES  
AND INTRICATE  
SHAPES CAN NOW  
BE FORGED

**NOW!**

# NEW 1954 CHEVROLET TRUCKS



**Completely new—the most powerful, finest performing,  
best-looking Advance-Design trucks ever built!**

Here's America's greatest truck builder's latest and greatest truck! Here's the brand-new line of Chevrolet Advance-Design trucks for 1954!

You'll find they're packed with great new features . . . loaded with big new advantages that mean faster, more efficient service and lower operating costs on *your* job.

**NEW POWER  
AND ECONOMY**

You get new high-compression power and greater operating economy with *three* advanced valve-in-head engines. Bigger, brawnier "Thriftmaster 235" engine. Rugged, durable

\*Optional at extra cost. Ride Control Seat is standard on C.O.E. models, available on all other cab models as extra equipment. Rear corner windows in standard cab, optional at extra cost.

"Loadmaster 235" engine. Mighty, all-new "Jobmaster 261" engine\*—most powerful in Chevrolet truck history.

**NEW RUGGEDNESS  
AND RELIABILITY**

Heavier axle shafts on 2-ton models. Bigger, more durable clutches on light- and heavy-duty models. Stronger, more rigid frames on *all*

**Most trustworthy trucks  
on any job!**



**ADVANCE-DESIGN TRUCKS**

models. New pickup and stake bodies are built to stand the roughest going and to keep coming back for more—and they give you greater load space for '54!

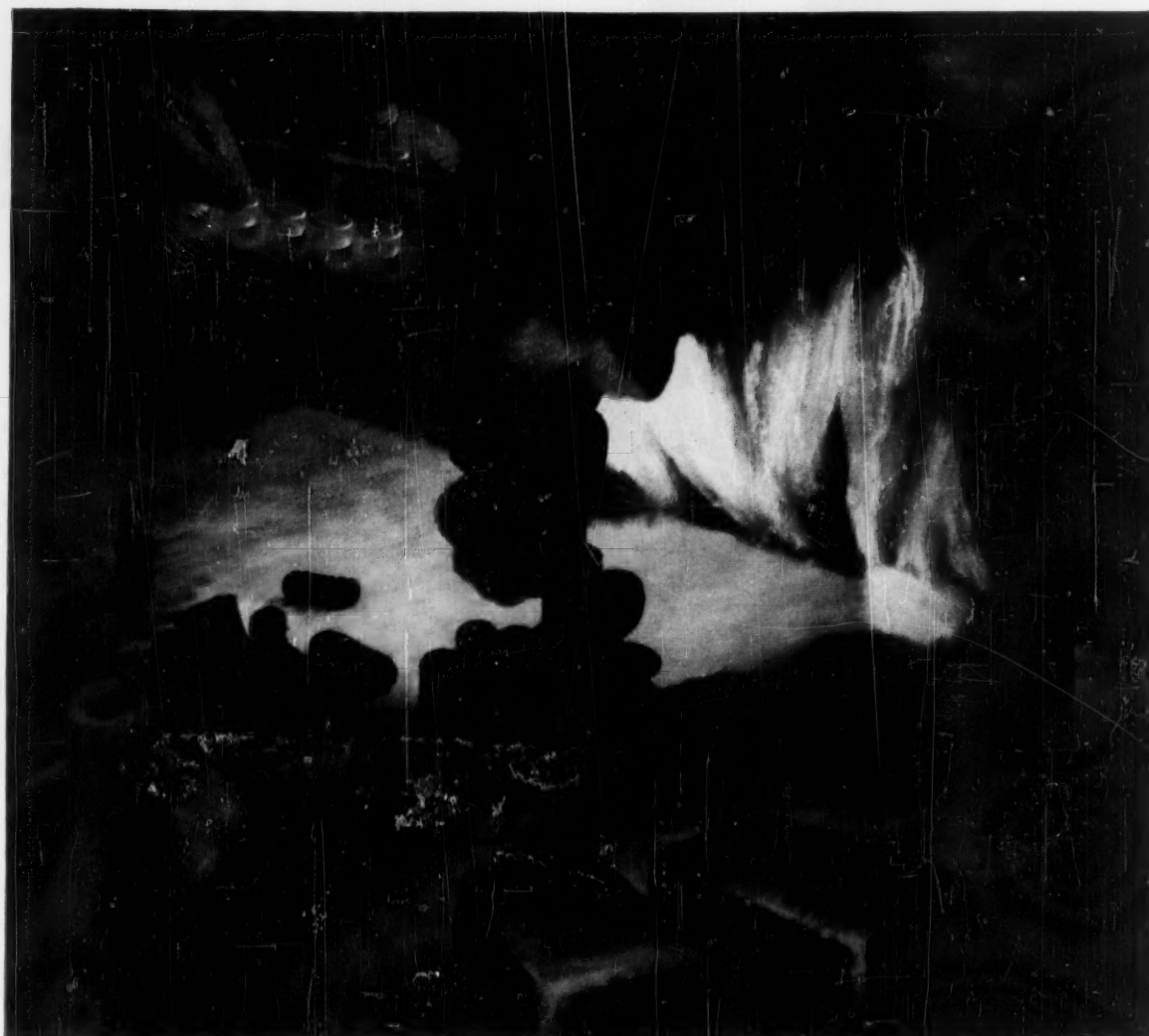
**NEW COMFORT  
AND CONVENIENCE**

New Comfortmaster cab provides increased visibility with new one-piece curved windshield. New Ride Control Seat\* brings you extra driver comfort. New truck Hydra-Matic transmission\* offers the last word in no-shift driving ease. Available not only on ½- and ¾-ton Chevrolet trucks, but on 1-ton models, too!

Plan to see the completely new '54 Chevrolet trucks, and get the whole money-saving story at your Chevrolet dealer's now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE!**



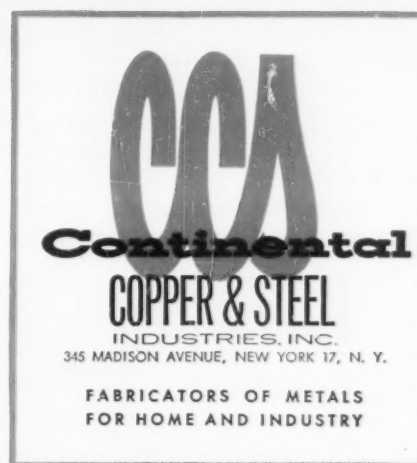


## INSPECTING NEXT YEAR'S MIRACLES

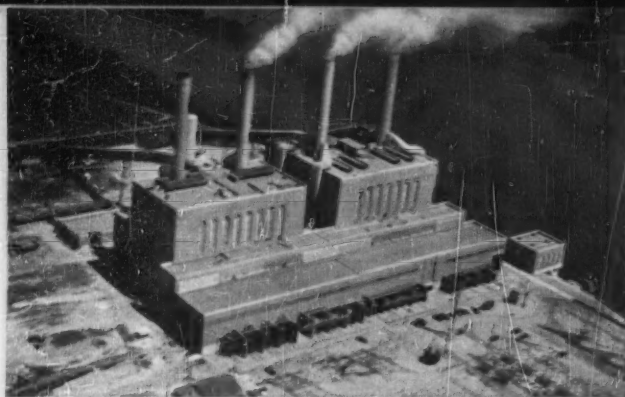
Thousands of today's ordinary necessities were just luxuries to dream about, only fifty years ago. These wonderful changes in our lives were made possible only by the kind of research which goes on at the seven divisions of Continental Copper & Steel Industries, Inc.

No wonder, then, that all divisions of CCS consider their programs of research and development so important. Their discoveries have led to an impressive list of new and improved products, from longer-lasting wire screen, to better insulated wire and special alloy metals.

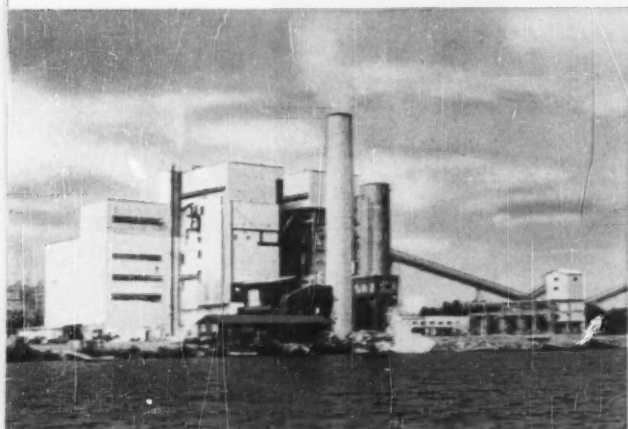
But research must have its beginning in the minds of men of vision. CCS is proud to have some of the country's finest "metal-scientists" on its staff, making an important contribution to a happier, stronger, more comfortable America.



**ALLOY FABRICATORS DIVISION**, process equipment. **BRAEBURN ALLOY STEEL DIVISION**, tool steels. **HANOVER WIRE CLOTH DIVISION**, wire screen, woven wire products. **HATFIELD WIRE & CABLE DIVISION**, wire, cable, cord sets. **NIAGARA FALLS SMELTING & REFINING DIVISION**, non-ferrous alloys. **WALSH HOLYOKE BOILER WORKS DIVISION**, pipelines, snow plows, heavy equipment. **WELIN DAVIT & BOAT DIVISION**, lifeboats, pleasure craft.



**SUNBURY STEAM ELECTRIC STATION (Unit 4)**—Sunbury, Penna.—Pennsylvania Power & Light Company.

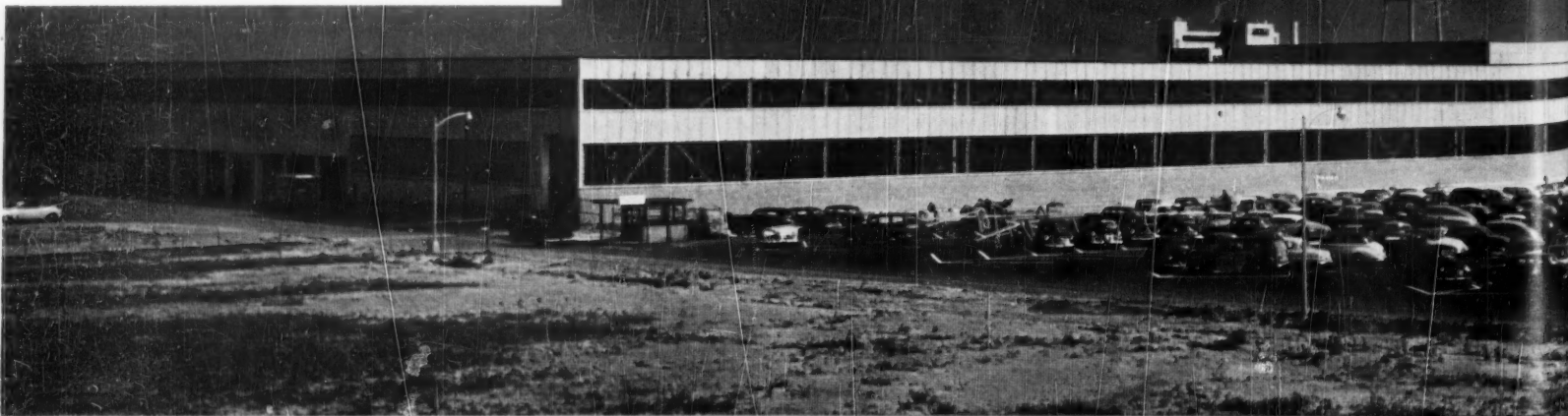


**AURORA STEAM ELECTRIC STATION (Units 1 and 2)**—Aurora, Minn.—Minnesota Power & Light Company.



**LAKE CATHERINE STEAM ELECTRIC STATION (Unit 3)**—near Hot Springs, Ark.—Arkansas Power & Light Company.

**WESTINGHOUSE REFRIGERATOR PLANT**—Columbus, Ohio—Westinghouse Electric Corporation.



# 18 Ebasco Projects Placed in Service in First Ten Months of 1953

## Six More Scheduled for Completion by Year's End

Ebasco has completed 18 projects for business and industry so far this year—ten of which are pictured on these pages. By the end of the year, six more are scheduled for completion—a total of 24 different jobs for 21 different companies.

For the utility industry, Ebasco will complete during 1953 more than 2,000,000 kilowatts of electric generating capacity—almost 25 per cent of all the electric generating capacity scheduled to be installed during 1953 by America's investor-owned companies.

In addition to engineering and constructing power plants, Ebasco also handles engineering and construction for many other industries. Two examples are shown here—the Westinghouse plant at Columbus, Ohio and the Green River Steel mill at Owensboro, Kentucky.

If you are thinking of building a new plant, why not send for our booklet, "The Inside Story of Outside Help." It describes our engineering and construction services as well as the wide range of consulting services Ebasco offers business and industry. Write: Ebasco Services Incorporated, Department N, Two Rector Street, New York 6, New York.

### NEW YORK • CHICAGO • WASHINGTON, D. C.

Appraisal • Budget • Business Studies • Consulting Engineering  
Design & Construction • Financial • Industrial Relations • Inspection &  
Expediting • Insurance, Pensions and Safety • Purchasing • Rates &  
Pricing • Research • Sales & Public Relations • Space Planning  
Systems & Methods • Tax • Traffic • Washington Office

*Ebasco Teamwork gets things done  
anywhere in the world*







*there's an art  
to making  
specialty steels, too*

It takes a delicate touch and years of experience to master the art of formulating and processing certain types of steels... like those used in fine cutlery, clock springs and TV magnets. These and hundreds of other specialty steels must be tailored to fit their ultimate use. For example, the cold rolled alloy steels needed for cutting such everyday items as bread, meat, paper, shoe leather and fabrics have to possess special qualities not found in ordinary steels.

For 53 years Crucible has been the first name in specialty steels. Crucible metallurgists and application engineers have pioneered the development of new types and shapes to meet the specific needs of the user. And Crucible mill men are skilled in the art of melting and forming steels of rare quality. If you need a special type of steel, call Crucible.

**CRUCIBLE**

first name in special purpose steels

53 years of *Fine* steelmaking

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.  
MIDLAND WORKS, MIDLAND, PA. • SPAULDING WORKS, HARRISON, N. J. • PARK WORKS, PITTSBURGH, PA. • SPRING WORKS, PITTSBURGH, PA.  
SANDERSON-HALCOMB WORKS, SYRACUSE, N. Y. • TRENT TUBE COMPANY, EAST TROY, WISCONSIN • NATIONAL DRAWN WORKS, EAST LIVERPOOL, OHIO

# CFI means...



A CFI DAY-LINE installation in a printing shop. Note apertures in reflector. Note how uplighting eliminates dark, gloomy ceiling.

## Comfort For Industry

The CFI DAY-LINE® is designed and built to provide better lighting in your plants and factories...*comfortable* lighting with proved ability to increase productivity and improve your safety record.

Scientifically engineered apertures in CFI DAY-LINE reflectors permit a 10% upward distribution of illumination. This uplighting reduces brightness contrast between fixture and surrounding ceiling area.

Write for full information. Ask for Bulletin OD-568. Day-Brite Lighting, Inc., 5425 Bulwer Ave., St. Louis 7, Mo. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

### CFI DAY-LINE® FEATURES

- One-piece reflector
- All-white porcelain enamel finish, reflection factor 82% or more
- Wiped edges prevent chipping and crazing
- Die-embossed apertures
- Turret\* sockets on all units
- Die-formed construction, 20-gauge steel
- Slimline or Standard Fluorescent

\*® G. E. COMPANY



354



FROM PENNSALT

## an outstanding new phosphatizing process

# FOSBOND



*Complete—even to a sales-building merchandising plan for you!*

Pennsalt's new Fosbond Process is an integrated series of operations and products for the phosphatizing of metal prior to organic finishing. Products processed with Fosbond have a more attractive, much longer-lasting surface because Fosbond locks the finish to the metal and provides lifetime corrosion resistance.

Behind this Process stand the extensive resources of Pennsalt—a major chemical producer for more than a century. Manufacturers using Fosbond can expect dependable, trouble-free phosphatizing and regular technical assistance from experienced Pennsalt specialists.

And here's a valuable merchandising "extra"! Fosbond has qualified for the famous *Good Housekeeping* Guaranty Seal. To gain public recognition and acceptance, the colorful Fosbond emblem incor-

porating this seal is being advertised in mass consumer magazines. Authorized manufacturers who affix this emblem to their Fosbonded products thereby gain a doubly effective sales builder!

Here, then, in one "package" are an outstanding new manufacturing technique and a dynamic merchandising plan for you. For a better finish on your product, for a smooth-running phosphatizing cycle in your plant, or for a worthwhile new sales feature—you ought to know more about Fosbond!

Give us details about your operations and we shall gladly answer your questions as specifically as possible. Write: Customer Service Dept., Pennsylvania Salt Manufacturing Company, 449 Widener Building, Philadelphia 7, Pa.

*Fosbond is a Pennsalt trademark*



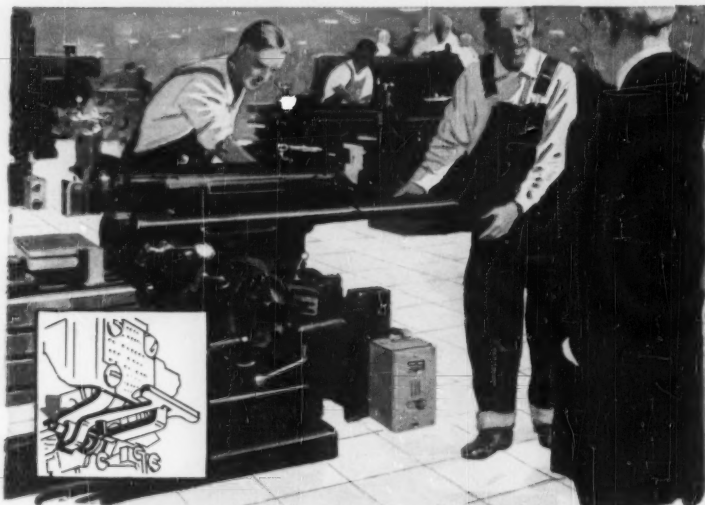
**Pennsalt  
Chemicals**

**PENNSYLVANIA SALT  
MANUFACTURING COMPANY**

THE THREE CUTLER-HAMMER STARS ★ ★ ★ STAND FOR THREE NEW STANDARDS

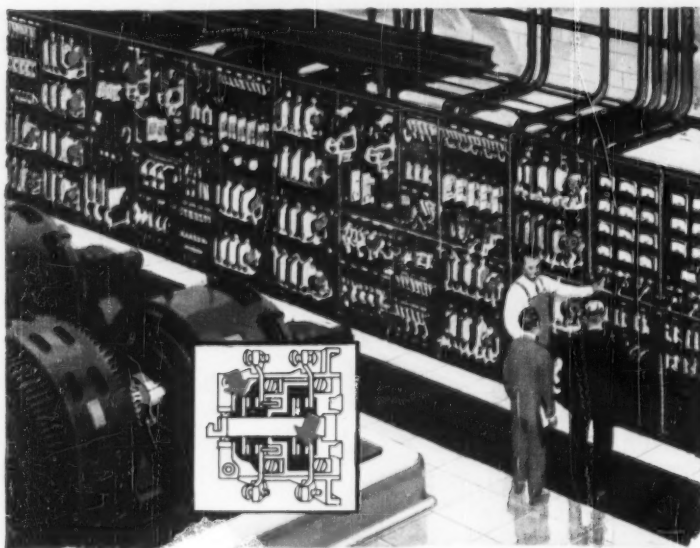
Rolling bearing action . . .

The proper performance and useful life of all modern machines demand anti-friction bearings. Motor control is no exception; it too must have good bearings to avoid wear and trouble.



Dust-safe vertical contacts . . .

Experienced engineers know vertical contacts work better and last longer because they stay clean, shed dust, do not collect it. Pressure arc quenching is important new C-H feature.



★ *installs easier*  
★ *works better*  
★ *lasts longer*



Less bounce by the ounce . . .

Research showed contact bounce caused arcing, that reduced weight in moving contact members cut bounce and arcing. So new light-weight parts now remarkably lengthen contact life.

Cutler-Hammer Motor Control has always been respected for its long life. It has frequently been chosen for industry's "killer" jobs by comparative test. Many users say, "I have never seen a Cutler-Hammer starter wear out." Yet the new Cutler-Hammer ★★ ★ Motor Control has *three times* the life of the good equipment it replaces! Nearly unbelievable, but it IS true. Now motor control you can install and forget! Try it. Prove it. Your nearby Cutler-Hammer Authorized Distributor is ready to serve you. Order from him today. CUTLER-HAMMER, Inc., 1436 St. Paul Avenue, Milwaukee 1, Wisconsin.



CUTLER-HAMMER ★ ★ ★ MOTOR CONTROL



# ALLIED

*builds the dies...  
delivers the stampings*



*for accurate, low cost*

## PROTOTYPE SHEET METAL PARTS

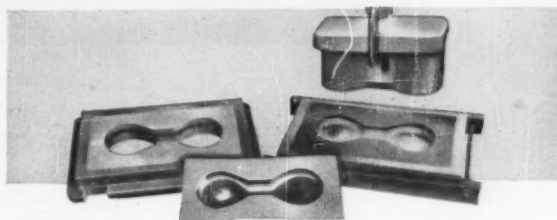
You can center complete responsibility with Allied's Allite Division for sheet metal stampings for prototype production . . . and save time, money and uncertainty by doing so.

For prototype production, Allied is thoroughly equipped to produce either plastic or Allite (zinc alloy) dies, depending on the physical or volume requirements of the parts. Upon completion of the draw dies, the necessary number of stampings are then produced on Allied presses and trimmed, flanged and pierced by hand and delivered ready for assembly.

When desired, the prototype dies can serve as the basis for development of production draw dies. With approval of the prototype parts, the production dies can then be built without delay or error—the true die

conditions having been proved in the original, inexpensive prototype dies.

We'll be glad to show you how this unique, all-inclusive service can fit your prototype requirements. Your inquiry will receive prompt attention.



*Other  
Allied  
Products*

SPECIAL COLD FORGED PARTS • STANDARD CAP  
SCREWS • HARDENED AND PRECISION GROUND  
PARTS • R-B INTERCHANGEABLE PUNCHES AND DIES

### ALLIED PRODUCTS CORPORATION

DEPT. D-15 • 12675 BURT ROAD • DETROIT 23, MICH.



PLANT 1  
Detroit, Mich.



PLANT 2  
Detroit, Mich.



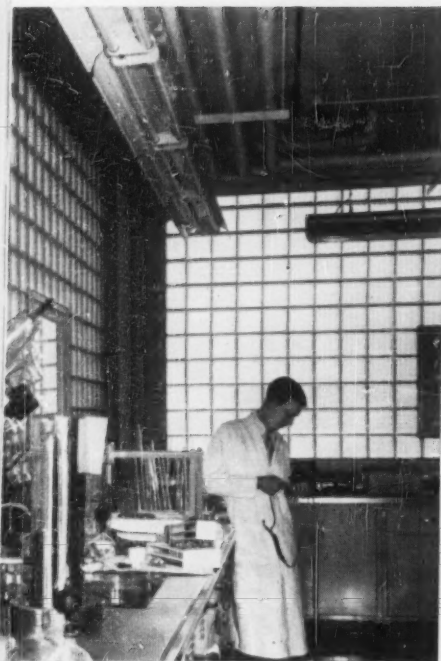
PLANT 3  
Hillsdale, Mich.



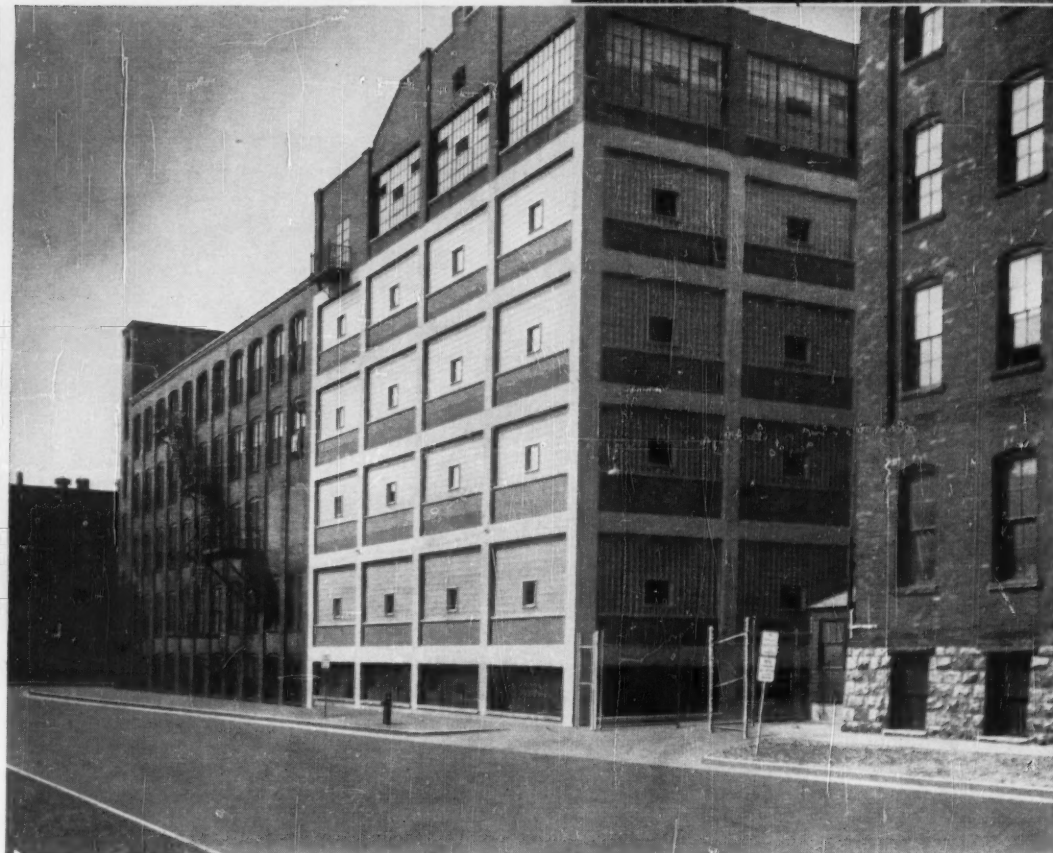
PLANT 4  
Hillsdale, Mich.

# Before Daylight Engineering

*(deteriorated sash plus high maintenance costs)*

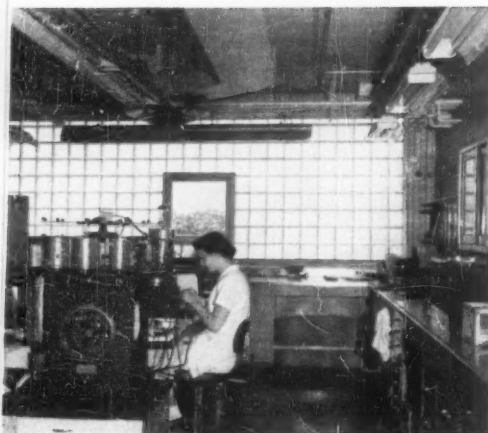


Control of room conditions is vital in the performance of critical laboratory experiments. Because of the excellent insulating properties of Insulux Glass Block, temperatures within each laboratory are easier to control.



# After Daylight Engineering

*(A pleasant, cheerful atmosphere and no maintenance)*



Abundant daylight is brought into the laboratories at all times of the day. And, because glass block has little affinity for dirt and dust, hospital-clean conditions prevail.

WHEN THE UPJOHN COMPANY, Kalamazoo, Michigan, transferred its pharmaceutical manufacturing operation to a new plant, it was decided to convert this 30-year-old building into laboratories devoted to the study of Pharmacology and Endocrinology.

One of the first problems that had to be solved was what to do about sash replacement. The original sash had deteriorated so badly it took continual, expensive maintenance to provide proper weather protection.

Since all of the laboratories were to be air-conditioned, Insulux Glass Block® was selected

because it promised savings in operating expenses as well as economical installation costs. The glass block modernized the entire building exterior and brought it up-to-date, despite the actual building age.

If you are in the process of remodeling old structures or building new ones, don't overlook the positive advantages that panels of Insulux Glass Block bring. An experienced Daylight Engineer is ready to help you with your plans. Write Insulux Glass Block Division, Kimble Glass Company, Department MI-12, Box 1035, Toledo 1, Ohio.



**KIMBLE GLASS COMPANY**

Toledo 1, Ohio—Subsidiary of Owens-Illinois Glass Company



*Engineering drafting room at Chance Vought Aircraft*



# SHORT OF ENGINEERS?

Photocopy Eliminates Unnecessary Drafting ...  
Frees Your Trained Men for ENGINEERING

One good way to lick the shortage of engineers is to get more out of the trained men you now have. Often, that's as simple as this: give them better tools, lift some of the burden of routine work from their shoulders, free them for truly creative work.

For example, set up better, more efficient drafting room practices or faster reproduction methods. One of the most time-saving of these is the use of photocopying to eliminate unnecessary redrawing — when, for example, only minor design changes are called for.

This shortage of engineers — right now estimated at 60,000 — is expected to remain acute for several more years. The Engineers' Joint Council sees the annual crop of graduates falling 60% short of the need for at least the next three years.

Have you examined *your* drafting room practices, your record reproduction methods, lately, in the light of this shortage? Are you getting the most from the trained men you now have?

Your Peerless distributor — a specialist in photocopying methods — will be glad to go over your procedures with you and offer his professional counsel on where you can make greater savings of time through the wider use of better photocopying methods. He has the long experience, the factory training, to be of real help to you. Why not call him today? If you are not sure of his name, write us and we'll put you in touch with him.

**PEERLESS PHOTO PRODUCTS, INC.**

Shoreham, Long Island, N. Y.

Manufacturers of Quality Photocopy Papers and Special-purpose Industrial Photocopy Equipment



## We've rung a lot of door bells in 40 years

During Signode's 40-year history, its representatives have covered the nation — making calls, completing sales. They have pressed a lot of door bells and gained much experience that is of real value to you today in strapping methods and carloading.

Carefully sizing up the packaging or handling problem, our fieldmen can get the right answers by calling upon a file of tested and successful ideas, some originating on our first day of business. Other problems demand our package research talents or trial loading in actual freight cars on our private test track. So thorough are our studies and so complete are our recommendations that today Signode is a word that signifies the highest "Standard" of the industry.



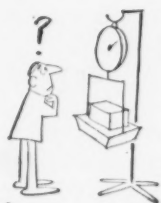
**SIGNODE STEEL STRAPPING COMPANY**  
2660 North Western Ave, Chicago, Illinois  
In Canada: Canadian Steel Strapping Co., Ltd.  
Montreal • Toronto





## NEXT TIME...ORDER SCOTTISSUE TOWELS!

1. They drink up water like an Airedale in August.
2. They're strong — even when soaking wet.
3. They're so soft that many people use them as face cloths.
4. They're clean and white — of course.
5. They're double-fold to dry double-quick.



EVER PLAY  
"GUESS THE WEIGHT"?

ScotTissue Towels have an exceptionally high fiber content. This "bulk," plus generous size and double fold, makes a case of 3,750 ScotTissue Towels weigh 46 lbs.\* Some paper towels cost less for 3,750 but are 10 to 20 lbs. lighter\* — hence less drying power. Write for more facts. Scott Paper Company, Dept. DR-4 Chester, Pa.

\*Shipping weight

# SCOTTISSUE

"ScotTissue," Reg. U. S. Pat. Off.



# TOWELS

Symbol of the right kind of washroom

*So many Automatic features help two hands do more!*

**BURROUGHS  
TYPEWRITER  
ACCOUNTING  
MACHINE**



*Post them All  
with this  
One machine*

**Cost Records**  
•  
**Stores Records**  
•  
**Payroll**  
•  
**General Ledger**  
•  
**Accounts Receivable**  
•  
**Accounts Payable**

Just two hands and the compact Burroughs typing-computing keyboard spell faster posting, lower-cost posting, for any business.

Note how the typing and computing keyboards can be spanned by the operator's hands, making it easy to switch from typing to computing and back again with no break in work rhythm.

These same hands have far less to do on a Burroughs, because the machine does so much automatically!

Let your Burroughs man show you how two hands can do more with this amazing machine. Call him today. Burroughs Corporation, Detroit 32, Mich.

*Wherever there's business there's*

**Burroughs**

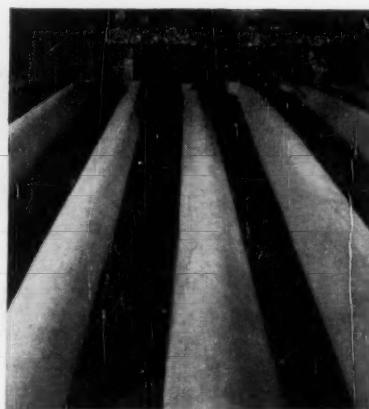




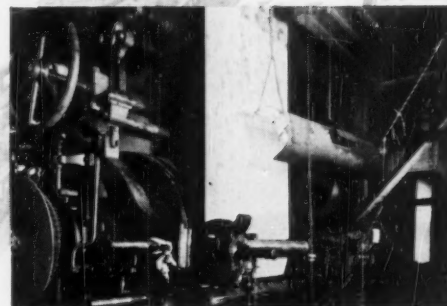


U. S. Army photo

**AMAZING STRENGTH, TOUGHNESS** of nylon is shown in new Army body "armor" used in Korea that reduced torso wounds by 60 to 70%. Twelve layers of flexible, spot-laminated nylon duck give protection that's superior, weight for weight, to steel.



**STRONG, ACID-RESISTANT** filter bags of "Orlon" acrylic fiber filter hot gases passing from a foundry cupola through this automatic dust control system. Bags withstand constant shaking, corrosive gases, 275°F. heat.



**HIGH-STRENGTH, QUICK-DRYING** "Dacron" makes possible continuous operation of these griegs used to blot up excess dye in cloth printing. "Dacron" griegs last up to 10 times longer . . . promise important annual savings. Nylon also is excellent for this purpose.

## Now man-made fibers are improving products

### ... AND MAY WELL DO IT FOR YOU

Strength that makes possible improved products . . . increased efficiency . . . lower costs . . . comes from Du Pont's man-made fibers. These versatile raw materials offer you a range of properties never before available in fibers. They can perhaps answer a production problem for you . . . help you make your product better, just as they've done in the examples shown here.

Each of Du Pont's man-made fibers—nylon, acetate, "Cordura", "Orlon" and "Dacron"—has its own unique combination of properties. Each is uniform as only a fiber made by man can be. It will pay you to investigate them in terms of your own needs.

Write for full information, describing the uses you have in mind. E. I. du Pont de Nemours & Co. (Inc.), Room 2520-N, Wilmington 98, Delaware.

**STRONG, STRETCH-FREE** "Cordura" makes possible this lighter, long-lift conveyor belt that troughs better, virtually eliminates take-ups.



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Watch "Cavalcade of America" on television.

### FIBERS TO FIT INDUSTRY'S NEEDS

#### NYLON

High strength wet and dry; elastic, shock-resistant, high flexibility. Resists deterioration from oils, alkalis. Tough, durable, lightweight. High abrasion resistance.

#### CORDURA\*

high tenacity rayon

High strength with low cost, low bulk; high resistance to stretch; resistance to heat. This high tenacity rayon has toughness, good durability and flexibility.

#### ORLON\*

acrylic fiber

Dimensionally stable; strong wet and dry; low moisture absorption; resistant to sunlight, mildew and weather exposure. High resistance to acids and other solvents.

#### DACRON\*

polyester fiber

High strength wet and dry; outstanding heat resistance; good chemical resistance; stretch resistance; good electrical insulating properties. Withstands abrasion, flexing.

\*DU PONT TRADE-MARK

hose for any purpose



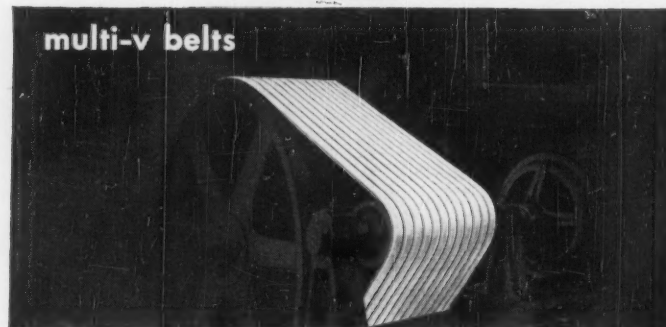
### Long lasting dependability

of Thermoid Products saves important production and maintenance dollars. That's why so many leading companies, in all industries, specify Thermoid Hose, Multi-V Belts, Conveyor Belts, and Transmission Belting.

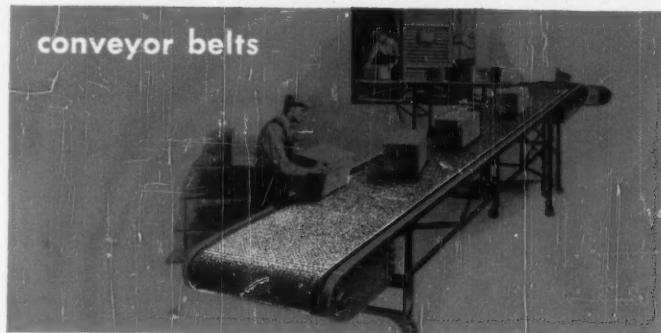
The companies who use these "built-for-the-job" products like the *service* they get from their Thermoid Distributors—plus the help of experienced Thermoid Sales Engineers with their intimate knowledge of your industrial rubber problems.

It will pay you to specify Thermoid.

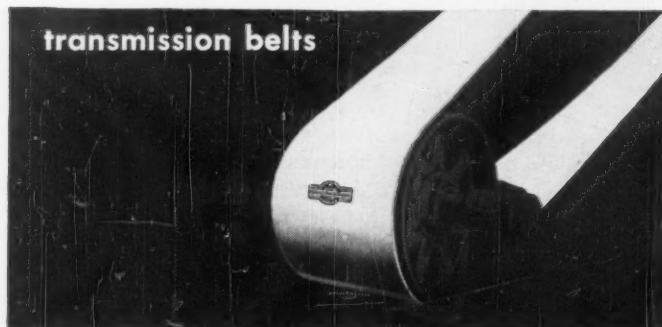
multi-v belts



conveyor belts



transmission belts



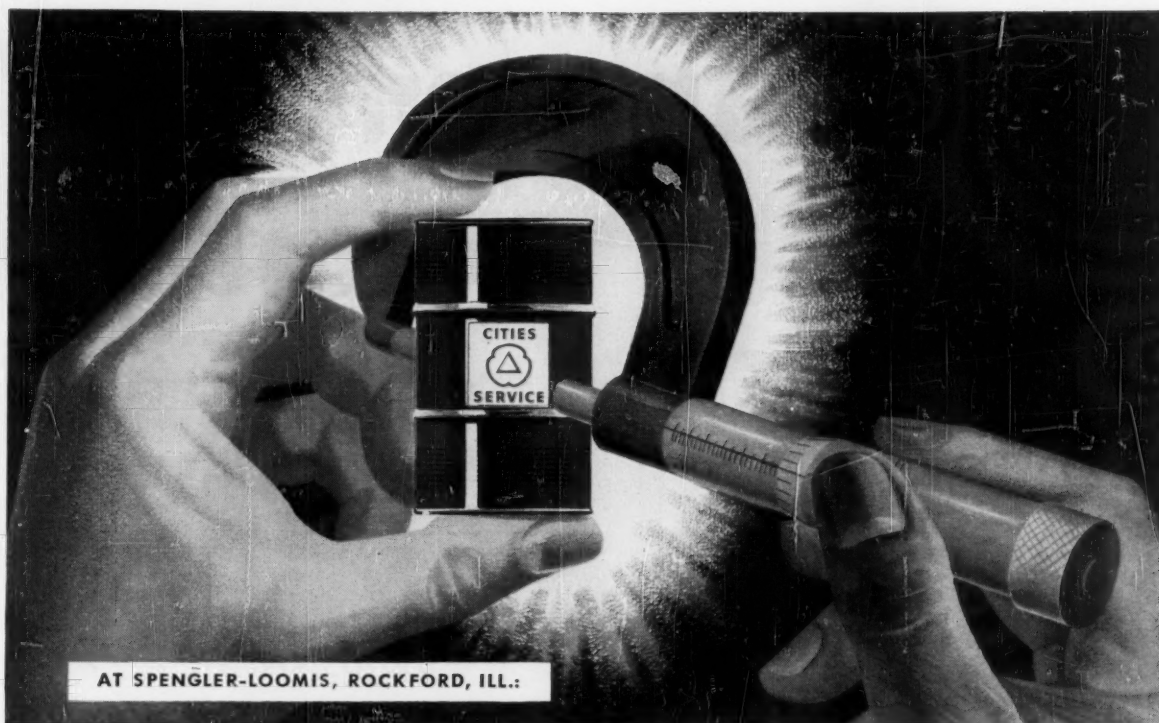
# Thermoid

Conveyor & Elevator Belting • Transmission Belting  
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products  
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah



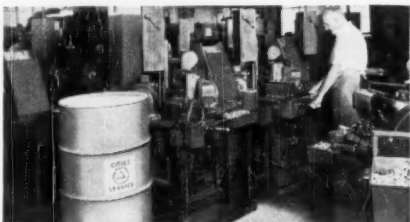


AT SPENGLER-LOOMIS, ROCKFORD, ILL.:

## Cities Service Cutting Oils Proved The Very Best By Micrometer Test!



**CUTTER MEASURED WITH MICROMETER.** As a final test, Automatic Pencil Sharpener measures each cutter with a micrometer. All tests proved that Cities Service cutting oil was absolutely tops for this really tough job.



**STRICT SPECIFICATIONS REQUIRE FINEST CUTTING OIL.** APSCO Sharpeners offer many more features than other brands. To produce their top quality product, Spengler-Loomis relies on top-quality lubrication products... Cities Service Products, famous throughout industry.

**ONLY .005 INCHES BURR OR BUILD-UP ALLOWED IN FIFTY-HOUR OPERATION CUTTING GROOVE IN B1112 STEEL!**

Says Mr. C. J. Kostrzewa, Plant Superintendent: "Cutting oil requirements in our Automatic Pencil Sharpener Division are tough. To find the right coolant, we called for, and tested, samples from various companies. Over a period of testing time, we used graphs, charts and tables, keeping a running record on all coolants. As a final test, we measured the cutter with a micrometer before and after milling. The cutting oil that came out tops was Cities Service.

"I'd also like to point out that the Cities Service Engineering staff co-operated fully by offering helpful advice and excellent service."

**Why not discuss your lubrication problems with a Cities Service lubrication engineer? Write Cities Service Oil Company, Dept. L30, Sixty Wall Tower, New York 5, New York—or contact your nearest Cities Service office.**

**CITIES SERVICE**  
QUALITY PETROLEUM PRODUCTS

# the bear went over the mountain



... to see what he could see

Brother Bruin went over the mountain because there wasn't any other way to get the information he wanted. If you want to get the lay of the land for factory location, you don't have to budge from your chair. A letter or a phone call will do the trick.

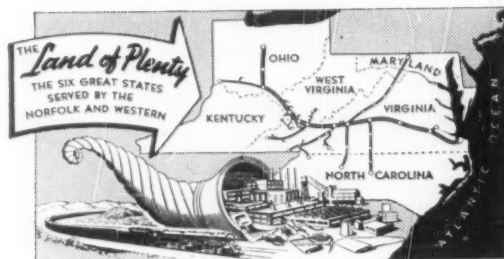
Your Traffic Manager is a transportation expert. Transportation is a major factor in good plant location. Consult your traffic manager about transportation advantages for your plant.

N & W plant location specialists have assembled complete and up-to-date information about the many excellent plant location opportunities in *The Land of Plenty*. This information and any other service they can render are yours for the asking, promptly, dependably, and in confidence. Please write, wire or call —

in the  
***Land of Plenty***  
you'll find

- Varied raw materials
- Finest Bituminous Coal nearby
- Home-rooted manpower
- Ample industrial power and water
- Nearness to markets
- Dependable N & W Rail service
- Port of Norfolk on Hampton Roads
- Room to grow
- Favorable state & local tax policies
- Fair real estate values
- Excellent climate
- Clean, progressive communities
- Good research facilities
- Prime dispersal advantages

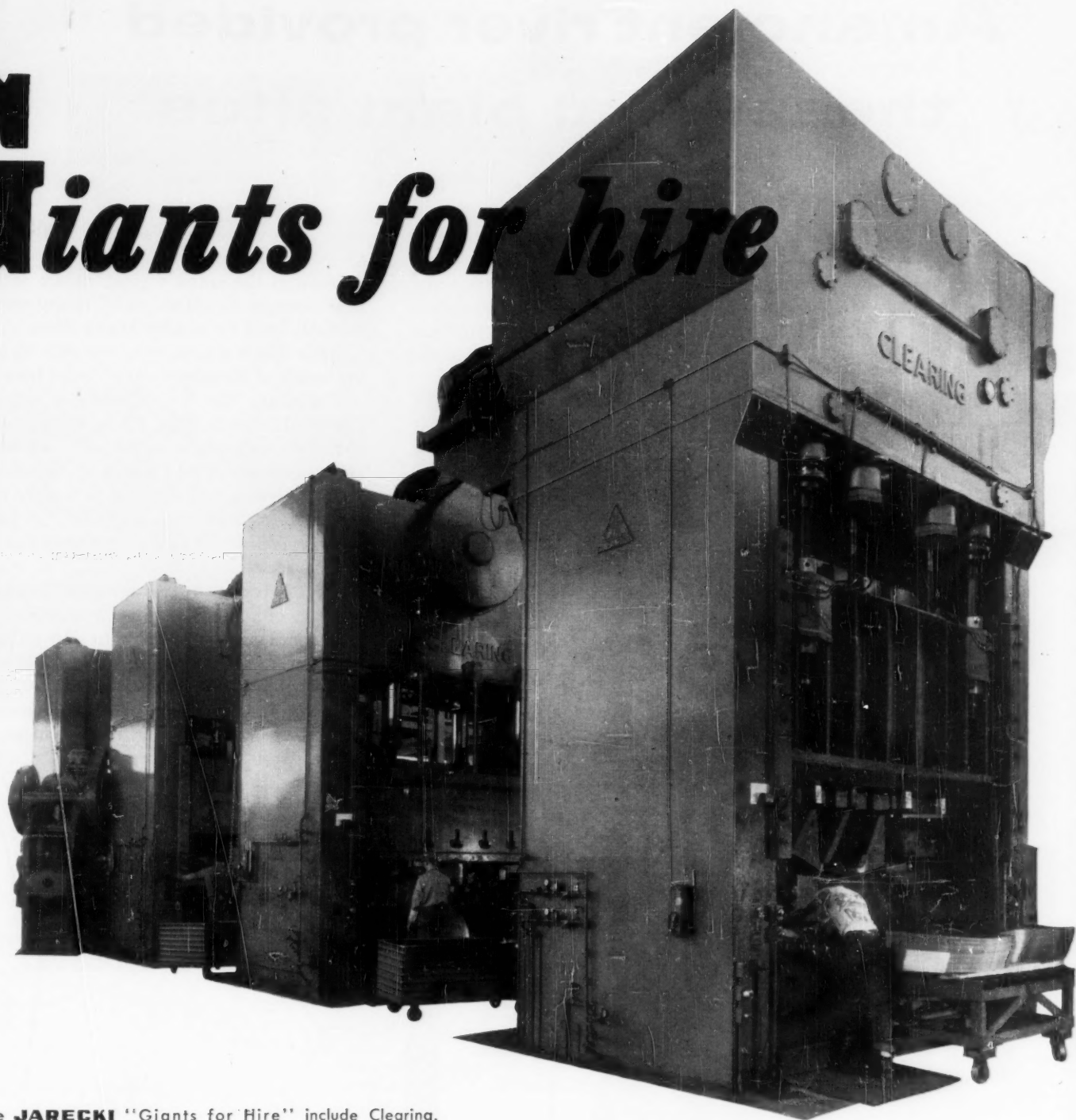
THE INDUSTRIAL AND AGRICULTURAL DEPT.  
Drawer DR-523. (Telephone 4-1451, Ext. 474)  
Norfolk and Western Railway  
ROANOKE, VIRGINIA



**Norfolk and Western**  
RAILWAY



# Giants for hire



The **JARECKI** "Giants for Hire" include Clearing, Danly, Bliss, Cleveland, Hamilton, Verson, and Niagara presses ranging from 25 to 1200 ton capacity. These presses are capable of producing the largest and the smallest parts used in the automotive and appliance industries.

These giants also contribute to the **JARECKI** reputation for making dies. Each die is production-tested on these presses before delivery to the customer.

Expanding facilities soon will make it possible for **JARECKI** "Giants for Hire" to serve new customers. A facilities booklet will be sent upon request.

## JARECKI

*engineering tools dies stampings assemblies plating painting*

GRAND RAPIDS, MICHIGAN



JARECKI MACHINE AND TOOL CO.

# An ancient river provided these ideal plant sites

One of the most nearly perfect industrial locations we have ever seen is the result of an unusual geological history. Ages ago a once-great river cut a mile and a half-wide channel through what is now southwestern Ohio. The glacier filled it deep with gravel. After the glacier had passed, new rivers dug new channels and

the ancient valley is now a broad, gently rolling plain set in the Ohio hills.

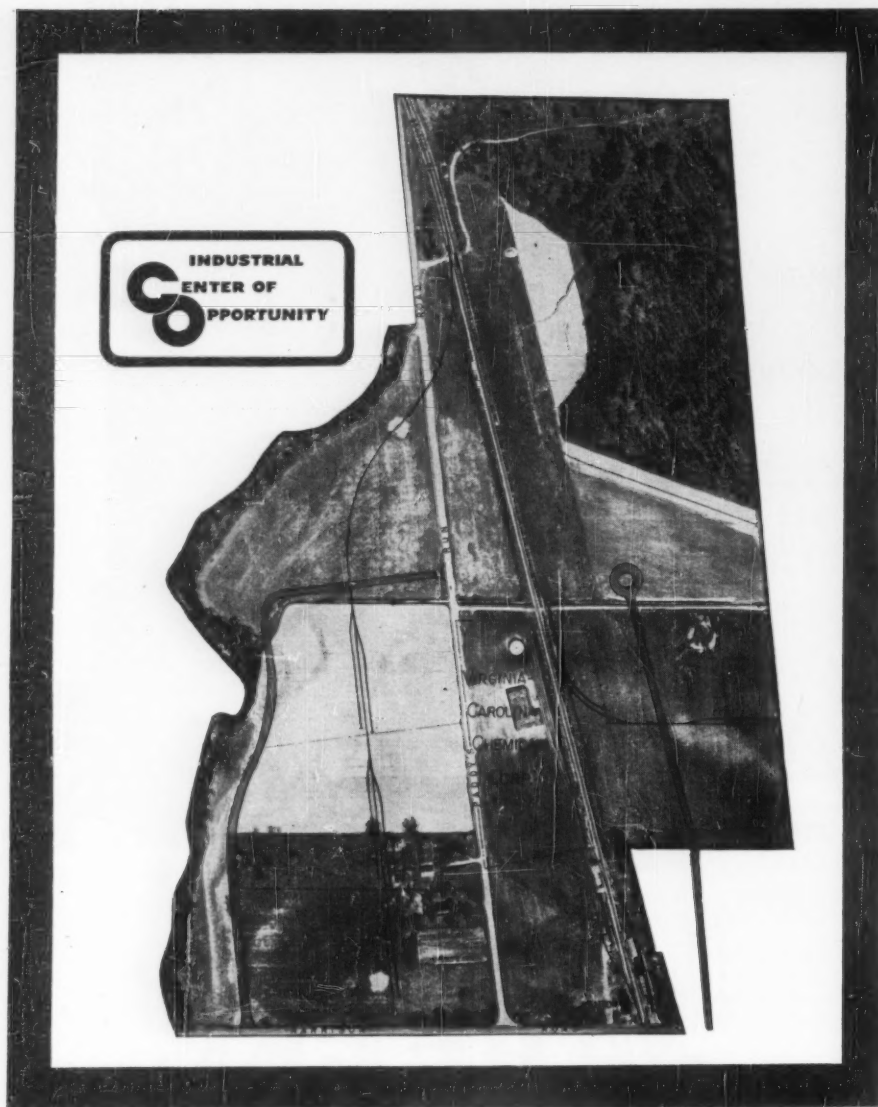
Down in the gravel a great stream of fine water flows through the old river bed. Plenty more water is available from the nearby Miami River.

While this is a rural area, it is only 12 miles from the center of Hamilton and 17 miles from the heart of Cincinnati. The fastest-growing suburban areas of Cincinnati already reach out to within 8 or 10 miles of the site, so ample labor is readily available.

The main line of the Chesapeake and Ohio Railway crosses the area and connects with other trunk lines to afford excellent transportation to all parts of the country. It is served by the Cincinnati Gas & Electric Company.

The C&O owns 88 acres alongside its tracks. There is plenty of adjoining acreage available.

Seldom have we been able to offer industrial sites which had so many desirable features. For a Pin-Point Survey giving full information write to: Chesapeake and Ohio Railway, Industrial Development Department, Cleveland 1, Ohio, Detroit, Michigan, or Huntington, West Virginia.



*Proposed development of part of the Fernald, Ohio industrial area.*

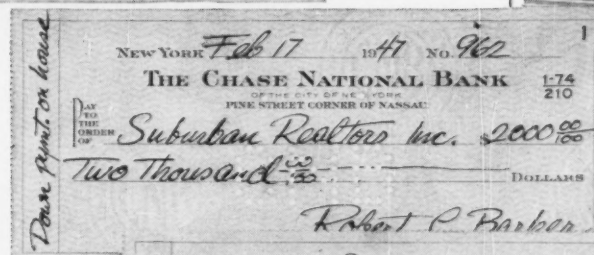
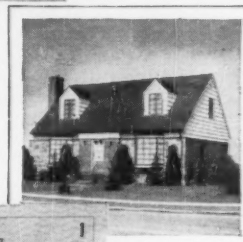
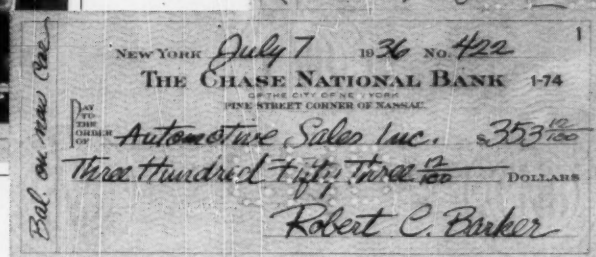
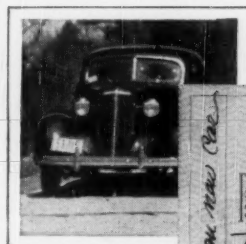
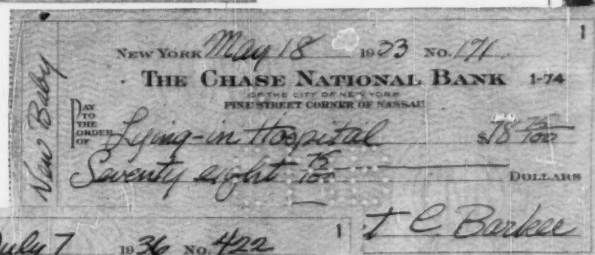
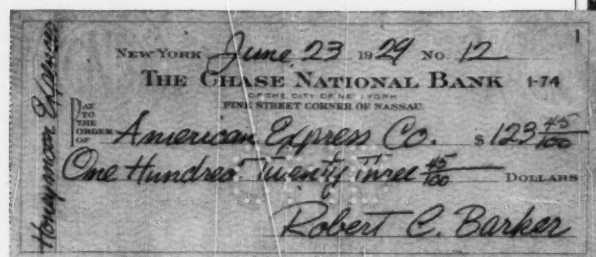


## Chesapeake and Ohio Railway

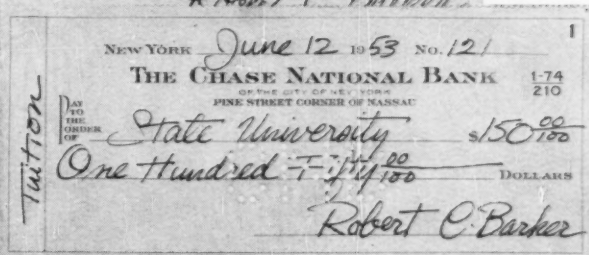
SERVING:

VIRGINIA • WEST VIRGINIA • KENTUCKY • OHIO  
INDIANA • MICHIGAN • SOUTHERN ONTARIO





## This typical life story was told us by a bundle of cancelled checks



THE MOST APT title for it is "Convenience." Here's why. Not once since he opened a checking account did our friend have to count out cash money, deliver it to his creditors, stand by for recounting or wait for a receipt. Conservatively, he has saved about 3,000 hours of good productive time paying by check. What's more, he has been able to buy Oregon apples, Wisconsin cheeses and Louisiana pralines without going any farther than the corner letter box.

All of which is high praise, indeed, for the American bank-check system.

Without it, businessmen would have to ride around in armored cars, carrying

their cash from deal to deal. Debtors would be obliged to pay up in currency, creditors would have to hire money counters, and the nation's economy would wither.

This becomes readily apparent when you realize that, based on estimates, the nationwide total of checks issued in 1952 reached the astronomical number of 7.9 billion with a value of \$1.7 trillion. Of this total, Chase alone handled 226.8 million checks in New York with a value of more than \$165 billion.

Statistically that makes quite a picture.

But more important than the figures are the people behind them. Your confidence in banks, your confidence in your

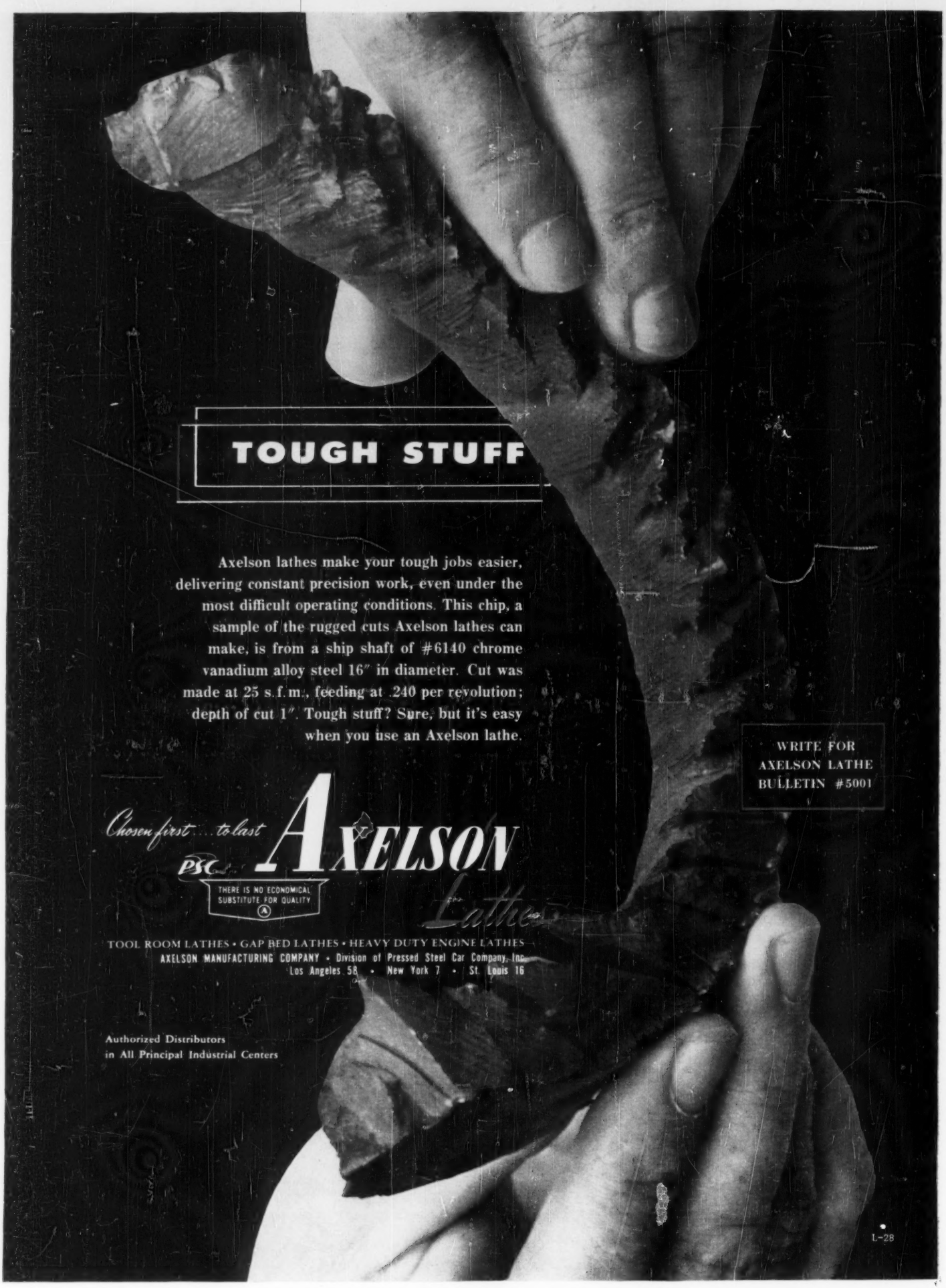
neighbors make the existence of bank checks possible. A good many banks—contrary to popular notions about "bankers' hours"—work 3 shifts, 24 hours a day to make the American checking system most efficient.

It all adds up to money moving faster, safer and easier than ever before in the history of the world.

Chase National Bank is proud to share in banking's contribution to the progress of our country.

\* \* \*

**The CHASE National Bank**  
OF THE CITY OF NEW YORK  
(Member Federal Deposit Insurance Corporation)



## TOUGH STUFF

Axelson lathes make your tough jobs easier, delivering constant precision work, even under the most difficult operating conditions. This chip, a sample of the rugged cuts Axelson lathes can make, is from a ship shaft of #6140 chrome vanadium alloy steel 16" in diameter. Cut was made at 25 s.f.m., feeding at .240 per revolution; depth of cut 1". Tough stuff? Sure, but it's easy when you use an Axelson lathe.

WRITE FOR  
AXELSON LATHE  
BULLETIN #5001

*Chosen first... to last*  
**AXELSON**

PSC

THERE IS NO ECONOMICAL  
SUBSTITUTE FOR QUALITY

A

*Lathe*

TOOL ROOM LATHES • GAP BED LATHES • HEAVY DUTY ENGINE LATHES  
AXELSON MANUFACTURING COMPANY • Division of Pressed Steel Car Company, Inc.  
Los Angeles 58 • New York 7 • St. Louis 16

Authorized Distributors  
in All Principal Industrial Centers

L-28





**above  
all**

...you want the speed of a  
**10-key Keyboard**

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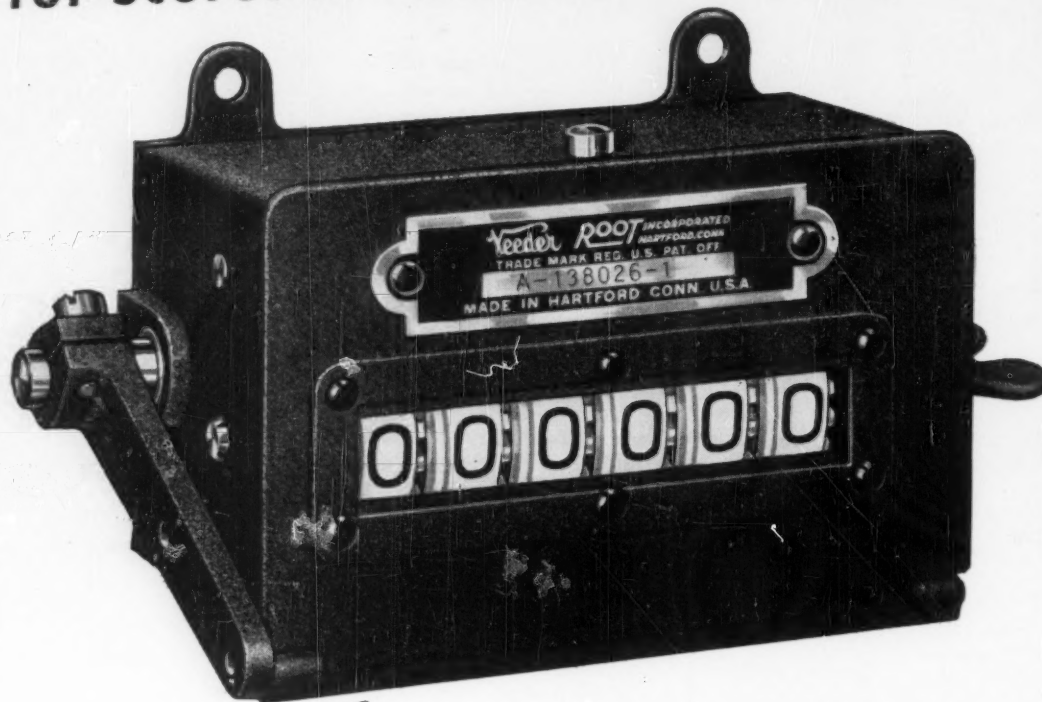


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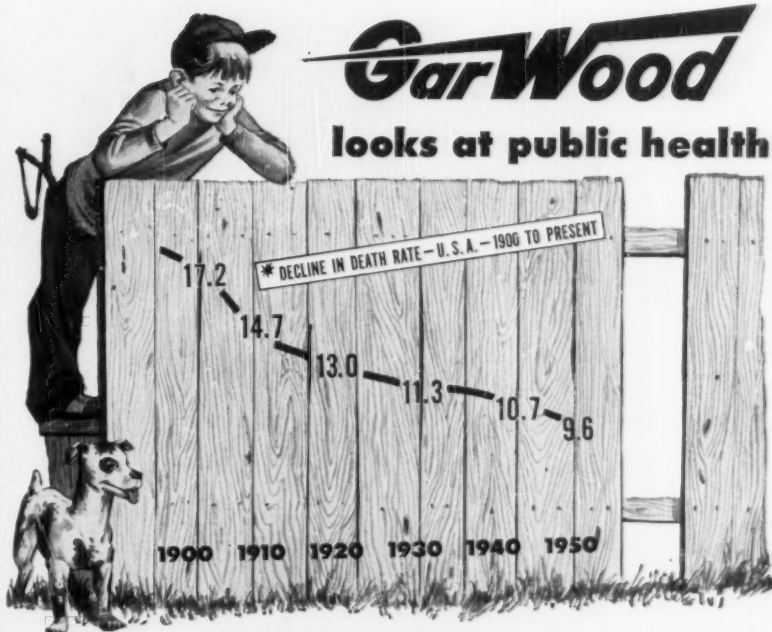


*"The Name that Counts"*



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\*DEATH RATE PER 1,000 POPULATION  
SOURCE: Federal Security Agency—Public Health Service

He's a lucky boy! Born in 1950, he enjoys an average life expectancy of 68 years—as compared with only 47 years in 1900. From 17.2 deaths per thousand population in 1900, the U. S. death rate dropped to 9.6 per thousand in 1950... and the rate continues to decrease. This remarkable record, says the Department of Health, "can be traced in large part to steady reductions in the death rate for infectious and communicable diseases."

Many factors have contributed to our improved public health but none has been more significant than our municipal sanitation programs. Fast, frequent collection of garbage and refuse has helped control disease by controlling disease-carrying vermin and insects. Sanitary land fill operations have provided safe, efficient means of disposing of refuse while actually creating useful property for civic improvements.

Proper sewage facilities are also vital to America's health. Thousands of miles of underground mains carry wastes to disposal plants while additional mains carry fresh, pure water into every home.

For many years Gar Wood has provided American communities with the means of maintaining and improving sanitation. Gar Wood LOAD-PACKERS are used in more than 2,000 communities for fast, sanitary, economical refuse collection while Gar Wood Dozers and Scrapers work daily in sanitary land fills. Gar Wood Ditchers and Cranes—as well as Dump Truck Bodies and Hoists—play a major part in constructing and maintaining water and sewer systems. Yes! Gar Wood plays a vital role in protecting America's health.

### U. S. AVERAGE LIFE EXPECTANCY

BORN IN 1900—47 YEARS

BORN IN 1950—68 YEARS



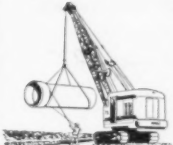
Gar Wood LOAD-PACKERS for clean communities.



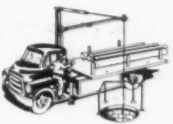
Buckeye DITCHERS for underground mains.



Gar Wood DOZERS for sanitary land fill work.



Gar Wood CRANES for construction and maintenance.



Gar Wood TRUCK EQUIPMENT for general hauling.

36004



## GAR WOOD INDUSTRIES, INC.

EXECUTIVE OFFICES, WAYNE, MICHIGAN

WAYNE DIVISION, Wayne, Michigan; ST. PAUL HYDRAULIC HOIST DIVISION, Minneapolis, Minn.; FINDLAY DIVISION, Findlay, Ohio; RICHMOND DIVISION, Richmond, California; NATIONAL LIFT CO., Ypsilanti, Michigan; UNITED METAL CRAFT CO., Ypsilanti, Michigan.



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### THAT MOVE MOUNTAINS

can move production to a new high in your business

Electric motors with on-the-job dependability are just as important in mining as in *your* business. That's why the builders of this blast-hole drilling machine specified Reliance Precision-Built Motors. Exposed to heat, cold, and the elements, blasted by abrasive rock dust . . . the rugged Reliance motors deliver the steady, unflinching performance that has made them first choice of management and production men for the toughest jobs in all industries.

*For your application, too!* As the user or the builder of machinery, you may have a problem that can be solved by a specially engineered drive or by one of the many rugged Reliance industrial-duty motors. Whichever your situation, Reliance is ready to help you. A call to your nearby Reliance Sales Office . . . or a letter to us direct . . . will place at your disposal almost half a century of Reliance specialized engineering experience in the application of electric drives.



A-1467



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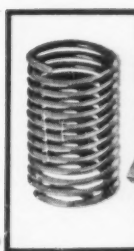
Your  
**REPUTATION**  
can hang by a

THREAD

Hard-earned customer good-will vanishes when thread failures cause break-downs. Why risk it? *Heli-Coil*\* Screw Thread Inserts eliminate all chance of such failure, usually without increasing your manufacturing costs one penny!

Using *Heli-Coil* Inserts, your designers and engineers can put you in a better competitive position with a lighter, stronger, more cleanly designed product—with fewer, smaller, simpler thread fastenings to reduce your own costs—material and assembly.

3 minutes spent reading "Pick Up The Thread," a non-technical brochure, will give you all the facts you need to put *Heli-Coil* Inserts to work for you. Written for creative management men, it explains concisely what *Heli-Coil* Inserts are, where they are used, by whom, and what they do for a product. It's yours free, by return mail.



\*Reg. U.S. Pat. Off.



**HELI-COIL CORPORATION**

232 SHELTER ROCK LANE, DANBURY, CONN.

☐ Send me free management brochure, entitled  
"Pick Up The Thread That Leads To New Profits."

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_



## New light for New York's oldest bridge

—and spliced with  
U. S. Uskorona Tape

With the remodeling of the main span and approaches of the venerable Brooklyn Bridge by the New York City Department of Public Works, a new lighting system was installed. And to make sure that splices would have and would *retain* the same dielectric properties as the cables they covered, engineers selected U. S. Uskorona splicing compound. It's the best tape made because it's the only one that protects against *both* ozone and moisture.

This United States Rubber Company product can easily withstand New York's severe extremes of weather conditions. Tests of four leading brands proved that Uskorona was the only one unharmed after 4 hours' exposure to ozone. Even when the exposure was extended to 500 consecutive hours, no damage occurred.

Naturally, Uskorona splices easily, fuses readily without heat. This "U. S." quality product is just right for insulating and splicing terminals, circuits, transformer leads and secondary transit systems. A staff of engineers is at every one of our 25 District Sales Offices to solve any industrial rubber problem. Or write to address below.



*"U. S." Research perfects it*

*"U. S." Production builds it*

*U. S. Industry depends on it*

**UNITED STATES RUBBER COMPANY**  
MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes  
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting





Reinforced plastic bread trays made with BAKELITE Polyester Resins withstand hard use; have long service life. Manufactured by **Molded Fiberglass Tray Company**, Linesville, Pa.

## Bread delivery the modern way! ...by REINFORCED glass fiber plastic tray

More and more bakeries are profiting from faster, less costly deliveries thanks to a new bread handling system. The key to it is a reinforced glass fiber plastic tray made with BAKELITE Polyester Resins. This tray speeds truck loading. It enables salesmen to make deliveries in less time, with less effort. And bread is handled *only once* from wrapping machine to store shelves.

In a typical tray system, 10 or 12 loaves—depending on size—are slid onto a tray after wrapping. Loaded trays go by conveyor or cooling racks to the loading platform where they are placed on angle irons in the truck. Light and smooth, the loaded trays slide forward as the truck travels. The salesman re-

moves them readily from the front of his truck for delivery into the store.

The tray, made by Molded Fiberglass Tray Company, is light in weight, moisture-resistant, strong . . . stronger than steel on a strength-weight basis! Its shape allows space-saving nesting of "empties" in delivery truck and bakery. Its smooth surfaces won't snag wrappers, and are easily cleaned, reducing maintenance to a minimum. Colors and printing can be molded into the tray.

This is another example of product improvement resulting from the use of reinforced glass fiber plastics made with BAKELITE Polyester Resins. These materials have found applications rang-

ing from light, graceful home furniture to vital aircraft parts. Perhaps they can inspire new products and designs for you. Bakelite Company engineers will be glad to help. Write Dept. SO-15.

# BAKELITE

TRADE-MARK

## POLYESTER RESINS



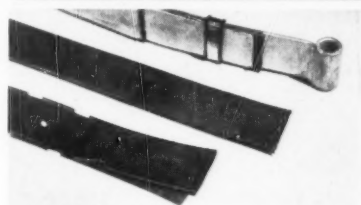
TRADE MARK

## BAKELITE COMPANY

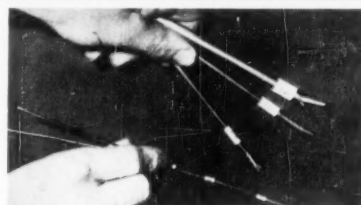
A Division of  
Union Carbide and Carbon Corporation



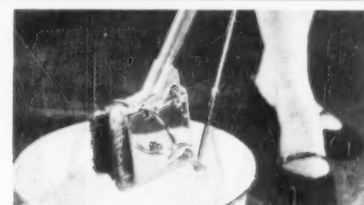
30 East 42nd Street, New York 17, N. Y.



**SPRING PADS** injection molded of BAKELITE Polyethylene, separate spring leaves, keep dirt out, prevent metal contact. Give long service at low cost. Made by Spring Perch Co., Lackawanna, New York.



**PERMANENT LEGIBILITY** is assured by tags laminated of BAKELITE Rigid Vinyl Sheets. Virtually any combination of print and color available. Polished and "write-on" finishes can be on the same tag. By Duramark, Inc., Port Washington, N.Y.



**BRISTLES** on this sponge mop are BAKELITE Styrene Plastic monofilaments that retain stiffness, withstand soap and detergents, won't curl. Dirt can't penetrate. Made by Buff Products Co., Port Chester, N.Y.





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